DOCUMENT RESUME

ED 147 578 CE 013 985

AUTHOR Shaw, R. Allan Valois, Ed.; Shaw, Laura G., Ed.

TITLE Manual on Independent Learning Centers.
INSTITUTION Hawkeye Inst. of Tech., Waterloo, Iowa.
SPONS AGENCY Kansas State Univ., Manhattan.; Office of Education (DHEW), Washington, D.C.
PUB DATE Mar 74
GRANT OEG-0-72-1439
NOTE 83p.; Some parts may be marginally legible due to small type

EDRS PRICE MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS *Adult Education; Agency Role; Community Agencies (Public); Community Resources; Curriculum Development; Educational Objectives; Educational Resources; Equipment; Guidance Services; Guides; High School Equivalency Programs; Independent Study; Individualized Curriculum; *Individualized Programs; Instructional Media; *Learning Laboratories; *Media Selection; Models; Occupational Guidance; Program Administration; *Program Development; *Programed Instruction; Program Guides; Program Planning; Resource Materials; Student Needs; Student Recruitment

ABSTRACT

This manual on independent learning centers (ILC) includes eleven chapters intended to provide assistance and resource materials to any institution or individual developing an ILC. The chapters each cover one of the following topics: learning center model; Hawkeye Institute of Technology's (HIT) Independent Learning Center; the ILC student from entrance to exit; ILC programs and activities; programmed instruction; hardware and software; recruitment for independent learning centers; guidance service as it relates to ILCs; administering the ILC as part of a total adult program; organization and implementation of an ILC; and role of community agencies. The appendix contains materials pertaining to the third and fourth chapters and includes student forms (application, time card, and high school record), HIT student handbook, resource materials (title, publisher, price, and primary use), and a brief description of the course offerings at HIT. (EM)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED147578

MANUAL ON INDEPENDENT LEARNING CENTERS

Edited by
R. Allan Valois Shaw
and
Laura G. Shaw

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

HAWKEYE INSTITUTE OF TECHNOLOGY

George V. Bennett
Director, Adult & Continuing Education

Box 8015
Waterloo, Iowa 50704 (319) 296-2320

HAWKEYE INSTITUTE OF TECHNOLOGY
Waterloo, Iowa
March, 1974

CE 013 985

DISCLAMER

The materials presented herein are responses to or products of a project performed pursuant to a grant from the Kansas State University, and the Office of Education, Department of Health, Education, and Welfare, Region VII, Adult Education Staff Development and Teacher Training Project #OEG-0-72-1439. However, the opinions expressed herein do not necessarily reflect the positions or policies of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

Acknowledgments of Editors and Authors

EDITORS

Mr. R. Allan Valois Shaw,
Formerly Program Consultant
Hawkeye Institute of Technology
Currently Director of Planning and
Program Development for the Area VII
Agency on Aging of the Northeast Iowa
Council on Aging. Waterloo, Iowa

Mrs. Laura G. Shaw,
Research Consultant
Comprehensive Program and Training Services
Cedar Falls, Iowa

STAFF AUTHORS

Mr. George Bennett, Director
Adult and Continuing Education
Hawkeye Institute of Technology
Waterloo, Iowa

Mrs. Dorothy Hanisch, Department Chairman
High School Completion & Adult Basic Education
Hawkeye Institute of Technology
Waterloo, Iowa

Mr. Dave Herrmeyer, Coordinator
Independent Learning Center
Hawkeye Institute of Technology
Waterloo, Iowa

Mrs. Sue Stedman, Retired Coordinator
Independent Learning Center
Hawkeye Institute of Technology
Waterloo, Iowa

CONTRIBUTING AUTHORS

Dr. W. Travis Martin, Superintendent
Hawkeye Institute of Technology
Waterloo, Iowa

Dr. Jon Sherk, Professor of Education
University of Missouri
Kansas City, Missouri

Mr. Donald Mocker, Assistant Professor
of Education
University of Missouri
Kansas City, Missouri

Mrs. Kristin Hibbs, Coordinator
Independent Learning and Counseling Center
Iowa Central Community College
Fort Dodge, Iowa

Mr. George Maybanks, Project Director
Office of Retirement Education
Opportunities
Kirkwood Community College
Cedar Rapids, Iowa

Mr. Don Reich, Director
Learning Resources Center
Southwestern Community College
Creston, Iowa

Mr. Bill Tanner,
Counselor-Coordinator,
Individual Learning Center
Iowa Valley Community College
Marshalltown, Iowa

Foreword

Hawkeye Institute of Technology was given the responsibility of holding an Institute on Adult Independent Individualized Learning Centers and of preparing a manual of materials relevant to the implementation and operation of such Centers. The funds for the Institute were obtained through a proposal submitted to The Department of Public Instruction of the State of Iowa which should be commended for the valuable services rendered in the development of the proposal and for the support given in implementing the Institute.

The Department of Health, Education, and Welfare (DHEW) funds provided through the University allowed midwestern educators to participate in an institute designed both to introduce the concepts related to Independent Learning Centers (ILCs) and to provide materials and resources which would further the ability of institutions, agencies, and individuals in meeting the educational needs of their communities.

The Institute on Independent Learning Centers was held from April 2, 1973 through April 9, 1973 on the campuses of Hawkeye Institute of Technology, the University of Northern Iowa, and various community colleges throughout the State of Iowa. The University of Northern Iowa should be commended for its cooperation in the development and implementation of the Institute. Iowa Central Community College, Iowa Valley Community College, and the Des Moines Area Community College should also be commended for their participation in Phase III of the Institute.

The Institute was divided into three phases. Phase I was an introduction to and exploration of a successful Independent Learning Center. The participants were introduced to the ILC through small group tours, small presentation and discussion groups, and independent explorations. A panel discussion among ILC coordinators completed Phase I. Phase II was an introduction to individualized programmed instruction. This phase was coordinated and presented by Dr. Paul Brimm of the University of Northern Iowa. Phase III involved the touring and exploration of selected Independent Learning Centers throughout the state of Iowa. All presentations, studies, lectures, and demonstrations were prepared and presented by individuals directly involved in Independent Learning Centers or programmed instruction.

Hawkeye Institute of Technology may have been selected to provide the Institute and produce this manual because of early and effective involvement with ILCs. Independent Learning Centers were pioneered in the state of Iowa by Hawkeye Institute of Technology. Research, developments, and experiences of educational institutions in North Carolina provided the background for HIT's ILC. The impetus for the Independent Learning Center came from Dr. W. Travis Martin, Superintendent of Hawkeye Institute of Technology. In 1966, Dr. Martin introduced the ILC concept and provided the guidance for the development of the Independent Learning Center—the first Learning Center in the State of Iowa. Today the Center is under the guidance of Mr. George Bennett, Director of Adult and Continuing Education at Hawkeye Institute of Technology.

This manual is the completion of the responsibility given to Hawkeye Institute of Technology to provide guidance and resources for the establishment of Independent Learning Centers. This manual is not meant to be a definitive work on ILCs, but rather a collection of relevant articles which may provide assistance and resource materials to any institution or individual developing an ILC. All authors selected to provide materials for inclusion in the manual are directly involved in the development or daily operation of ILCs. The intent of this manual is to provide both practical and theoretical assistance.

Table of Contents

Chapter I Learning Center Model: An Overview
Dr. John Sherk and Mr. Donald Mocker 1

Chapter II The Student at Hawkeye Institute of Technology's Independent Learning Center
Mr. Dave Herrmeyer 7

Chapter III The ILC Student from Entrance to Exit
HIT Staff Writer 10

Chapter IV ILC Programs and Activities
HIT Staff Writer 14

Chapter V Programmed Instruction
Dr. W. Travis Martin 16

Chapter VI Hardware and Software
Mr. Donald A. Rieck 24

Chapter VII Recruitment for Independent Learning Centers
Mr. George Maybanks 36

Chapter VIII The Guidance Service as It Relates to Individualized Learning Centers
Mr. William M. Tanner 38

Chapter IX Administering the ILC as Part of a Total Adult Program
Mr. George Bennett 42

Chapter X The Organization and Implementation of an Independent Learning Center
Mrs. Kristin Hibbs 46

Chapter XI The Role of Community Agencies
Mrs. Dorothy Hanish 51

Appendices to Chapters III and IV 53

CHAPTER I

Learning Center Model: An Overview

By Dr. John Sherk and Mr. Donald Mocker

I. Guidelines for the Development of a Model for a Learning Center in Adult Education.

The guidelines for the development of a model for a Learning Center for an AE program are divided into two broad categories: Teacher Training and Curriculum. It is pointed out that inherent in each category is the encompassing of and concern with students, their responses, their goals, and their attitudes.

The guidelines which follow are to be considered only as indicators of factors which should be taken into consideration when a Learning Center is being established. They are not specific and rigid rules which apply in all cases; they are more in the nature of reminders for proposal writers to consider and to provide for in planning and financing.

A. Teacher Training in the Learning Center Approach

1. Recruitment

One basic element to be taken into consideration in training teachers for the Learning Center is the role they assume in recruitment of students. In some AE programs persons other than the teachers have primary responsibility for filling classes. In the Learning Center concept, the Learning Center teacher or coordinator, by one means or another, assumes some measure of responsibility for getting students into the Center. These methods may include the following:

a. Newspaper advertisement
b. Radio and TV announcement
c. Contacting community agencies such as public schools, welfare agencies, unions, businesses, fraternal organizations, churches, civil rights groups, and hospitals.
d. Neighborhood classes
e. Armchair classes

Traditional approaches used in student recruitment have had only limited success in most areas. In considering the establishment of a Learning Center, thought should be given and ways should be specified as to how the Learning Center coordinator or teacher will be employed in recruitment of students.

2. Definition of Teacher Role in the Learning Center Approach in Adult Education

One of the most important tasks in teacher training for the Learning Center approach is the specification of the new or changed role of the teacher. The teacher or coordinator of the Learning Center does not behave like the traditional teacher. The requirements for competence and the measure of success for such teachers are different. Some of the specific aspects of the role of the Learning Center teacher or coordinator are outlined below:

a. Diagnosis and Interview

The teacher must meet students on an individual basis from the beginning. There is no whole-group instruction in this approach. The teacher must be trained in interview procedures and in diagnostic testing and placement testing. Each student is presumed to have different goals and needs in education. The Learning Center teacher must be prepared to ferret out and plan to meet these various needs on an individual basis.

b. Planning To Meet Goals

The teacher is oriented to the view that no two adults have the same educational goals or needs. Therefore, the teacher must review his diagnostic results with each student, discuss, and agree upon a program of activity which will meet the needs and achieve the goals they (student and teacher) have mutually agreed upon and understood.

c. Scheduling

In the Learning Center approach to AE, the student is given the opportunity to work in the Center at his convenience. Most Centers maintain an open-door policy from early morning until late evening. In this way, the student can utilize the Center before or after work; he can come in his working clothes; and he can smoke. In other words, every effort is made to accommodate the student. With this plan in operation, one of the important aspects of the roles of the teacher is to make sure the student has scheduled himself adequately so as to meet his goals; it also means that the teacher must carry out follow-up procedure when students do not report at their scheduled times. Letters and phone calls are the means used by most teachers in follow-up. If a student becomes ill or confined to home, frequently the teacher takes his work to him so he can keep on with his program. The teacher also needs to regulate the intensity of the contact with students. For example, if a student is not progressing at a satisfactory rate, it may be that he is not spending enough time in the Center. In

this case, the teacher would meet with the student, explain the problem and hopefully convince him to come to the Center more frequently. Record keeping and attendance records are vitally important in this approach. Therefore, the prospective Learning Center teacher or coordinator needs specific in-service training in this regard.

d. Knowledge of Programmed Instructional Materials

Since the program of each student is unique, much or in most cases all, of his instruction takes the form of programmed instruction. In order to function effectively, the teacher in the Learning Center must be familiar with the theories of programmed instructional material (linear, branching, etc.) and must be able to identify such programs by examining the materials. While it is not necessary for the teacher to be familiar with the entire content of any program, the teacher must be familiar with the mechanics of it, must be able to intervene in the program effectively, and must know how to shift the student from one set of programmed instructional materials to another within a subject area or from one subject to another. Also, the teacher must keep up with the new programmed instructional materials being developed and must acquire and review them as they become commercially available for possible acquisition for the Learning Laboratory.

e. Record Keeping and Follow-Up

Student progress in the Learning Center is related to his enthusiasm for the work and this is directly related to his knowledge that he is making gains and is being successful in his work. Frequently the teacher must meet with the enrollees for the purpose of keeping records up to date as to attendance, amount and quality of work completed, testing, planning, and reporting. By meeting frequently and individually with the teacher, the student feels he is important, that he has someone with whom he can communicate, not only concerning his educational progress, but about any personal problems. This activity is absolutely essential in the Learning Center approach. It is the key to all the motivational attitudes to this approach. Without careful attention to record keeping and follow-up, the Learning Center approach would be nothing more than a regular classroom approach with programmed instructional materials.

3. Teacher-Student Inter-Action Patterns

It is scarcely adequate to have indicated specific aspects of the Learning Center operation in which the teacher or coordinator is to be trained without also indicating some facts of the inter-personal and intra-personal relationships between teacher and student which are desirable in this approach. The following section deals with the very crucial problem of orienting the Learning Center teacher towards relating positively with the student.

a. Goal Setting

One of the first problems the teacher in the Learning Center will face is that of helping the student to conceptualize his goals of both long and short term duration. Characteristic of most undereducated adults' goal setting behavior is the tendency to focus too narrowly upon a specific goal and fail to realize the necessity of including other goals which will make his life richer and his primary goal easier and more certain of accomplishment. For example, an adult may verbalize that if he were to be able to learn to read, he would become qualified for a job in a particular factory. The teacher might ask him to describe the job he wants and might find that the student possessed very little specific information about it. Together they could look deeper into the specifics of the desired employment and find out that other skills besides reading

are required. These new requirements then become incorporated with the goal setting process, and the student proceeds, by a variety of activities, to move toward his objective in a more realistic way.

b. Selecting and Starting Programs

Once having helped the student set his goals, the teacher in the Learning Center must be able to assist the student in selecting some instructional materials which will move him towards his goal. The teacher should be able to explain the various programmed instructional materials to the student and explain to him what he should be able to do when he completes a particular program. The student should have a general knowledge of the contents of a set of programmed instructional materials before he starts the program. Reference sources such as tape recorders and filmstrips can be used as orientation devices for introducing students to a new program. If he forgets some aspect of the purpose at some point in a program, the student can refer to the tape recording or the filmstrip interpretation. If the student finds he does not like a program the teacher can shift or transfer him to another programmed set of materials which he finds more acceptable. The teacher in the Learning Center can also organize the students' programs in step fashion, one program leading into another at successively higher levels of achievement.

c. Modifying Student Attitudes

The essential task in this type of student-teacher interaction is to show the student that he is capable, despite his previous experiences, of attaining his goals through his own efforts. This is accomplished partly by reinforcing his success experiences with his programmed instructional materials, partly by verbal reinforcement of his faithful attendance, and partly by informing others in his life of his efforts and his successes in his educational endeavors. Some Learning Center teachers have instituted "graduation" ceremonies for persons who have completed their GED exams successfully and have invited those who are striving to accomplish this to attend. Others have sent letters to parents, husbands, wives, and employers stating that the student had made good progress, should be encouraged, and should be recognized in some way for his efforts to improve himself. In every conceivable way the student is given the idea that his efforts will pay off, that he can learn, and that he himself is the most important student in the program. Having stated this principle of modification of students' attitudes, nothing can take the place of the teacher's warm, accepting, and reinforcing role in face-to-face, day-to-day interaction with the student. Lacking this, negative attitudes of students simply cannot be changed.

d. Encouraging The Student To Go Further

Because the curriculum of the Learning Center is organized around programmed instructional materials, it is possible to organize these programs within subjects and between subject areas in step fashion. Therefore, students who have successfully completed some of the lower steps can be directed into the more concentrated study of subjects in which they have developed an interest at succeeding higher levels of difficulty. One example of this would be a person who has read a selection from an SRA card on mythology who can be referred to a book from the resource library on the subject which he can read on his own. In fact, every program in the Learning Center can be keyed to a list of reference books or instructional programs which will elaborate upon and stimulate his basic interest. This function of the Learning Center is viewed as a natural extension of the activity and in this sense is a unique approach. It would not be possible for a teacher in the regular classroom to meet the student's interest and instructional needs to the degree possible in the Learning Center. It is only by capitalizing upon his intrinsic motivation to learn that the student can be taken (or take himself) from the basic skills to the elaboration and application of these skills in content areas.

B. Curriculum Development Model in the Learning Center Approach

Much of what has been done in curriculum building in Adult Basic Education has been the result of an uncritical examination of the assumption that what is good curriculum for public school pupils is good for adults also. This has been true of both the skills and subjects chosen to make up the curriculum and of scope and sequence of presenting skills and subject matter sequences within the adult's curriculum.

Any adult educator would be well-advised at this step to not let the assumption go further unexamined. In the establishment of a Learning Center designed to serve the adults in a particular community or area, the question of *how* the adults are to be served becomes the single most important question to be answered at the outset.

Two approaches are possible. In the traditional approach, it has been customary for the adult educator to say, in effect, "It is my business to know what is good for the adults to learn." The traditionalist then proceeds to list the skill areas and subject matter areas he believes to be important. He assembles curriculum guides in skills such as reading, writing, and arithmetic. Then he examines and purchases texts which purport to cover

these skills. He organizes curriculum guides in such areas as citizenship, social studies, science, etc., and examines and purchases textbooks which cover these subject matter areas. He then hires teachers who are experienced in teaching the subject and skills he has indicated, orients the teachers to the curriculum guides he has prepared, arranges to have someone orient the teachers to the specific curriculum materials he has chosen to cover the skills and subject (usually the publisher's representative), and the teachers then proceed to teach their skill areas or subject areas much as they have been trained to teach in the public schools. A modification of the above is often observed in cases where the adult educator allows the teacher to choose tne curriculum material to be used in the classroom. The net results of this approach, however it's done, is a program which looks very much like a public school program, only instead of school-age children in the seats, one finds adults. It might also be observed that the same purposelessness and apathy sometimes show on the faces of the adults in these classrooms as can be seen on the faces of the reluctant learners in the public school classroom. It is not to be denied that the skill and dedication of the teacher make a decided difference in the outcome of any such program of instruction. There simply is no substitute for the skilled teacher. There is also a shortage of skillful, dedicated teachers willing to work on the problem of Adult Education.

For these reasons, then, an alternate to the traditional method of curriculum construction is outlined in the following section. The process of curriculum development for the Learning Center is a different process than the process used in development of the more traditional curriculum.

The adult educator who embraces the Learning Center concept does not start with the assumption that he knows what adults need to learn. Rather, he takes the position that adults need to learn many things, not all of which are possible to place within the curriculum of Adult Education. While he acknowledges that mastery of certain skills is prerequisite to any meaningful progress toward educational or vocational goals, the Learning Center advocate believes the individual student is the best source of reliable information about the specific content of the curriculum which will meet his needs. Further, he believes that individuals are so different that no single curriculum can be constructed to meet the needs of a group of adults. He therefore takes the position that the student with the help of his teacher must create his own curriculum as he goes and that each student will have a curriculum different from other students in significant ways.

The mechanism used by the adult educator in the Learning Center to achieve this individualized approach is programmed instructional material, self-directed and self-corrected learning sequences. The criteria for choosing which programmed materials are to be included in the Learning Center become those which meet the needs of the students attending the Center. In this respect, probably no two Learning Centers would evolve in exactly the same way nor would they contain the same curriculum materials. The Library Resource Center is an elaboration and necessary addition to the Learning Center. The Library Resource Center is like a library in the sense that it has a system for cataloguing and shelving its holdings, but it is unlike a library in that it develops its holdings in conjunction with the Learning Center. If the emphasis in the Learning Resource Center would gear its acquistion budget in this direction, perhaps in time the Library Resource Center would develop balance between its fiction and non-fiction holdings, and this would reflect a similar balance in the activities of the students in the Learning Center.

It should be emphasized that the process of developing a Learning Center curriculum is an orderly one. First, it is necessary to know something about the potential group of adults who will utilize the Learning Center. The size of the potential student group, their backgrounds, the likelihood of being employed and the type of employment they might get, the range and depth of their educational experiences, the social-economic level of the student group, the availability of community resources relevant in the development of the Learning Center, the hours which most students might use the Learning Center and the general attitudes toward education held by the student groups are some of the things which need to be taken into consideration when planning the establishment of a Learning Center. Probably the best way of obtaining such information is by conducting a thorough survey of the situation. Such a survey might include interviews, both face-to-face and mailed survey forms, census data, public records of various kinds, and by asking persons who worked in ABE programs in the area for certain information.

Once the survey has been completed, a specific process of curriculum developed may be put into action. The remainder of this section will be in the form of an outline of the specific steps in the process of developing curriculum materials for the Learning Center.

II. Selection of Basic Skills and Subjects for the Learning Center Curriculum

Out of the information obtained from the preliminary survey mentioned above, the adult educator should, with the help of outside consultants, select the most basic skills and subjects upon which to focus the curriculum of the Learning Center. This implies a decision making process involving which subjects and skills will be included and which will not be included. The difference between this procedure and the traditional procedure is that decisions in this case are made not upon a prior knowledge of the adult educator, but upon the basis of information about the potential student population. At all times the selection is made with the understanding that the Learning Center curriculum cannot contain *all*

that adults need to learn; rather, the decisions are made on the basis of what are the most relevant kinds of skills and learning for the particular group to be served.

III Development of Basic Concepts in Skills and Subjects

After the decisions on skills and subjects comprising the Learning Center curriculum have been made, the specification of basic concepts within each skill and subject are to be identified. For example, if math is identified as a basic skill and is to be included in the Learning Center curriculum, the task in Step II is to specify those basic concepts within mathematics which the curriculum will be designed to teach the student. Not all mathematical concepts will be relevant. Some relevant mathematical concepts will be beyond the basic computational level. Therefore, programs of instruction will have to be developed or identified which will enable the student to attain mastery of them. In this way, the curriculum content is focused sharply upon the most relevant learnings for the student. Time and effort are not wasted upon the educational trappings which the student perceives as being irrelevant for him. Also, because his tasks are sharply focused, he makes rapid progress in his instructional program.

At this point it is important to state that certain compromises in specifying concepts within subjects must be made. For example, the mathematical concepts needed for the student to pass a test such as the GED may or may not be the same as those needed for him to progress in the field of electricity. If his goal is to become a qualified electrician first and to get his high school equivalent diploma later, then the curriculum of the Learning Center must be constructed in such a way that this can be accomplished. If it is not arranged in this way, the student should be so informed.

IV. Stating Learning Objectives Reflecting Mastery of the Concepts Specified

After the basic concepts in each subject and skill area have been specified, statements reflecting what the student will be able to do when he masters the concepts must be made. For example, if a basic concept in reading is identified as "Syllabication," then the specific behaviors which the student should be able to display when he masters this skill must be specified. In this case, master of skills in phonics, structural analysis of words, and dictionary would be included.

It would be impossible to accomplish this step in the construction of curriculum for the Learning Center if much of the work in the specification of behavioral outcomes in the mastery of key concepts were not already completed. Great progress has been made in recent years in this regard, and the adult educator can call upon consultants who will be able to help him write behavioral objectives for the concepts which he has identified.

V. Selecting Programmed Instructional Materials To Meet Stated Learning Objectives

When the adult educator knows what he wants the student to be able to do in demonstrating mastery of the key concepts he has specified in each subject or skill area, he proceeds to select programmed instructional materials which will produce the desired behavioral outcome. Most good programmed instructional materials state what the student will be able to do when he completes the contents of the program. The task in this step is to match the program with the previously stated objectives. It is at this stage that the adult educator must have access to a wide assortment of programmed instructional materials, or he must go to a location where such materials can be examined. The mistake of purchasing programmed materials which do not meet the stated objectives, should be avoided. There are thousands of sets of programmed instructional materials on the market, with more being added daily. The material covers a wide variety of skills and subjects. They vary widely in quality and price. In this regard, consultation by experts in the field is quite advisable when setting up a Learning Center.

VI. Criteria For Evaluation of Internal and External Validity of Programmed Instruction Materials

Developers of Learning Centers must pay particular attention to the quality of the programmed instructional materials they place in the Learning Center because it is the programmed instructional material itself which carries the burden of the actual teaching. If it is no good or of inferior quality, the Learning Center will be a failure. Programs should be selected on the basis of two kinds of validity: (1) Internal validity—does the program state what it will teach the student and does it do that? (2) External validity—does the student accept the program contents, does he derive satisfaction from working in it, or does he, despite its quality and internal validity, reject it for other reasons? Procedures for validating programmed instructional materials should be routinely followed in the Learning Center and should encompass better aspects mentioned above.

Internal validation, that is judging whether the program activity does what it says it will do, is part of the process in generating programmed instructional materials. Reputable publishers of programmed materials furnish a manual which accompanies the program in which the specifics of such validating procedure are included. Buyers would be well advised to be wary about purchasing programs which do not have validating information furnished by the publishers. There are also validating criteria in the form of checklists which can be obtained and applied to any set of programmed instructional material. While many such checklists are available, a sample of such a validating instrument was developed in the Adult Learning Center of North Carolina State University by Dr. J. B. Adair. The first step in the validation procedure, then, is to gather publisher validation information and/or apply in-house validation criteria. It is strongly suggested that this step precede the purchase of any programmed instructional material.

A second step in the validation procedure is simply this: "No matter how good this program is reputed to be, how well do my students like it?" If the answer is, "they don't like it at all," there is really no point in having it in the Learning Center. There are many reasons why students might not like an otherwise high-quality program. It might be perceived by students as too juvenile and insulting in format. It might appeal to rural rather than urban students, etc. In any case, a Learning Center coordinator who has purchased a number of programs

which, for one reason or another, are unacceptable to and unused by his students has really cut the effectiveness of his Laboratory or Center by stocking it with deadwood. This should be avoided because programmed instructional materials are fairly expensive on a per-student basis, and where funds are limited, too many mistakes of this type can reduce the effectiveness of the ongoing instructional program considerably.

VII. Guidelines for Use of Available Media and Educational Technology in the Learning Center

There has been a tremendous increase in the amount of hardware available for use in educational settings of all kinds. The Learning Center teacher, in the process of setting up a laboratory, should outline the ways which have been found useful in employing certain pieces of hardware in the Learning Center. These guidelines should encompass such items as tape recorders, language masters, records, filmstrips, projectors, tachistoscopes, films, etc. Failure to set forth these guidelines may lead to an undesirable over emphasis upon hardware in the Learning Center. All of this equipment has become expensive, and where funds are limited, this function is particularly important.

Several suggestions can be made here with reference to the use of hardware. First, much good use can be made of tape recorders in orientation of students to new types of programs. Students can, when they start a new program, listen to a tape recording (using earphones) which tells them what the program is about and how to proceed to use it properly. The advantage in this is that the student can listen to the instructions as many times as he needs to until he understands what he is to do and how to proceed, without depending upon the teacher for this. There are many more ideas on the proper use of hardware than can be listed here. Therefore, it is suggested that the Learning Center teacher, in the process of setting up the Learning Center, investigate this area thoroughly by reading the reports of other Learning Centers and by writing other Learning Centers to get some ideas as to how to write these guidelines. The guidelines themselves will be useful to new Learning Center teachers who may be preparing to work in the Learning Center of Laboratory.

VIII. Guidelines for Physical Control of Programmed Instructional Materials, Inventory, Ordering New Material, and Equipping the Learning Center

Built into each Learning Center must be a set of procedures which detail how the center will operate. Staff members should give consideration to how (by what procedures) a student obtains his instructional materials, whether he may take them home, or only work on them at the Center, whether he may consume the material, or whether the work he does is on separate sheets, how supplies are ordered, and what priorities are set for the acquistion of material supplies and equipment for the Learning Center. These "rules of housekeeping" should be written so that all staff members of a Learning Center will function in a consistent fashion.

IX. Integration of the Learning Center Programmed Instructional Materials With a Library Resource Center

Whatever decisions are made concerning curriculum to be included in the Learning Center, these curriculum areas should be backed up with library resources which will enable the student to elaborate upon his basic learnings in a subject. The student should be encouraged to do wide independent reading in subjects in which he is interested, and he should be assisted in the location of such resource material by the librarian.

In fact, each set of programmed instructional materials can be keyed ahead of time to a set of resource materials and readings which elaborate upon basic learning written for the program itself. In this way when a student who is working on a particular program, for example, is sent to the Library Resource Center, he can be taken directly to a shelf of books and other resource material which is relevant to what he has been studying in his program. This material can be geared to his skill development levels, so that he is not given material as resource material which is beyond his reading level or beyond his current mathematical development level.

Certainly the developments of a Library Resource Center cannot be done immediately. It cannot be developed adequately, in fact, until certain curriculum decisions are made in the Learning Center. However, after the Learning Center is in operation, and curriculum materials are in use, then the alert Library Resource person can quickly develop the nucleus of a Library Resource Center. As the Learning Center or Laboratory matures, the Library Resource Center can develop in parallel. As new programs are added in the Learning Center, new acquisitions can be added to the Library Resource Center which will back up these programs. In the very best sense, the Library Resource Center is an integral part of a mature and well developed Learning Center.

CHAPTER II

The Student at Hawkeye Institute of Technology's Independent Learning Center

By Dave Herrmeyer

Each Hawkeye Institute of Technology student is unique and reaches his selected educational objectives through an individualized learning process. However, the vast majority of students attend the Independent Learning Center in order to obtain one or more of eight (8) major objectives. These eight (8) major objectives may be used for effectively and economically developing and implementing general procedures and curriculum. The eight major objectives are:

1. To earn transferrable high school credits for the purpose of acquiring a diploma through the regular high school curriculum.
2. To prepare for high school equivalency (GED) tests.
3. To refresh and review previously acquired skills such as typing and math.
4. To prepare for entrance examinations and advanced study at post-secondary institutions.
5. To receive remedial assistance with learning difficulties encountered while attending other institutions such as trade schools, colleges, and private academies.
6. To gain practical and employable skills.
7. To earn credits to graduate from a high school program designed especially for adults.
8. To increase understanding and general knowledge.

Curriculum and teaching methods should be developed and implemented to assist students in attaining one or more of these primary objectives.

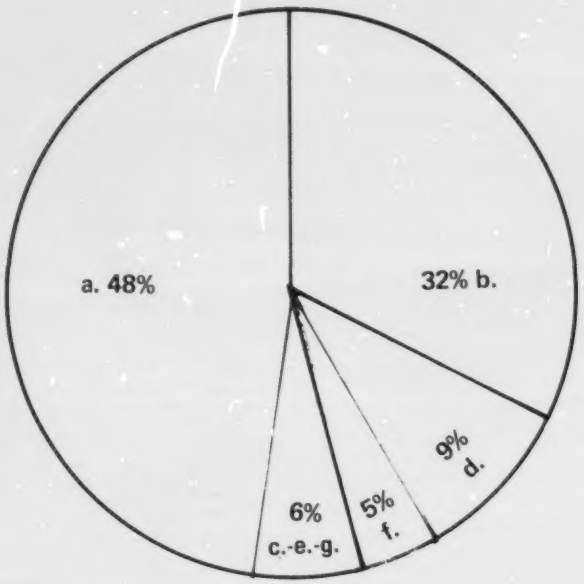
The following are a few brief descriptions of various students' reasons for enrolling in the Independent Learning Center. These descriptions exemplify that the organizational focal point of an Independent Learning Center is the educational objectives of students rather than the curricular concepts of a faculty.

1. A middle-aged woman is learning clerical skills as part of her high school completion program. She will use her skills in order to become self-supporting. Her husband is a chronic alcoholic and has left her and her family without support or opportunity. The ILC has provided her a way to meet this tragic situation.
2. A high school drop-out wants to become a "good" example for her children who are currently entering high school. Through the ILC she will obtain her high school diploma before her children.
3. One young lady will present her high school equivalency diploma as a present to her husband for Christmas.
4. A thirty-two year old fireman who is a father of two children and works two full time jobs, will finish high school and go on to college. The ILC, through flexible time scheduling, has given this man a way to improve himself and the living conditions of his family.
5. A sixteen year old high school drop-out will enter auto mechanics school through the ILC, and will no longer "stand on the corner waiting for some action."
6. A twenty-three year old welfare recipient will finish high school and receive skills training through the ILC.
7. A lay minister will finish high school and improve his reading abilities through the ILC, and then apply for seminary. The ILC has provided this idealistic young man a way to realize his life's calling.
8. A young high school student is pregnant and will leave public school. She will attend the ILC for one semester, remain current with her classmates, and return to public school without loss.
9. A young man with asthma cannot attend school regularly. He will be able to attend the ILC when his health permits; thus, he will be able to earn a high school diploma rather than being denied a high school diploma because of his health.
10. Because of the extensive care required by a dying father, a young girl's high school grades fell sharply. She graduated from high school, but her grade point average was so poor that she was denied entrance into an LPN school. This young lady came to the ILC, studied medical terminology and other appropriate courses, earned straight A's, and was finally admitted to LPN school.
11. A graduate student studied international trade at the ILC over the summer in order to take a college course in world finance.
12. A high school student discovered that by taking a few extra courses at the ILC he would be able to graduate from high school one semester early and enter college at a more favorable time.

Charts and Graphs

The following charts and graphs will provide a quantitative analysis of the HIT-ILC student body.

1. Graph of objectives by percentage of student body:

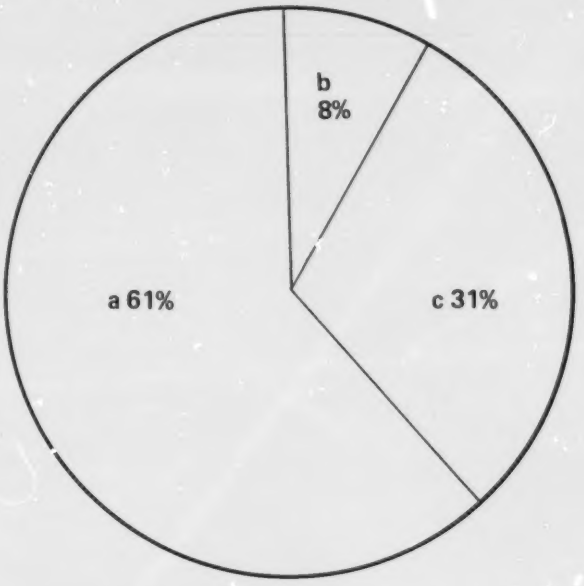


a. To earn transferrable high school credits
b. To prepare for GED
c. To review previously acquired skills
d. To prepare for advanced study
e. To receive remedial assistance
f. To gain practical and employable skills
g. To increase general knowledge

2. Age and sex of ILC students:

	MALE	FEMALE
16 - 20 years	29%	29%
21 - 25 years	8%	7%
26 - 30 years	3%	8%
31 - 35 years	2%	4%
36 - 40 years	2%	3%
41 & Up	2%	3%
TOTALS	46%	54%

3. Enrollment status by percentage of student body:

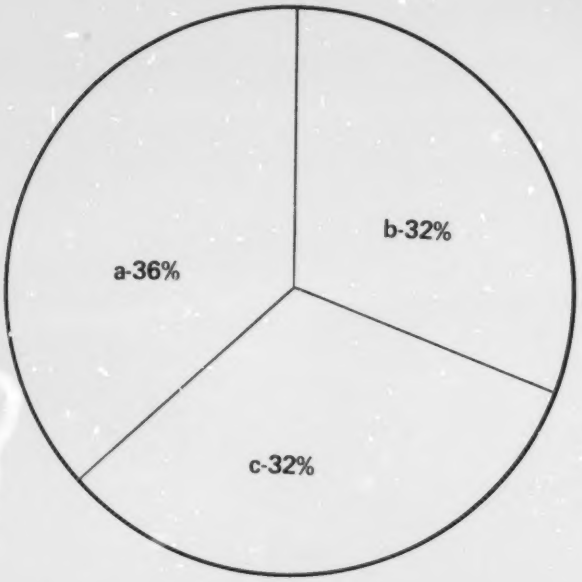


a. High school drop-outs
b. High school graduates
c. Currently enrolled in other educational institution or specialized programs

4. Local and non-local students by percentage of student body:

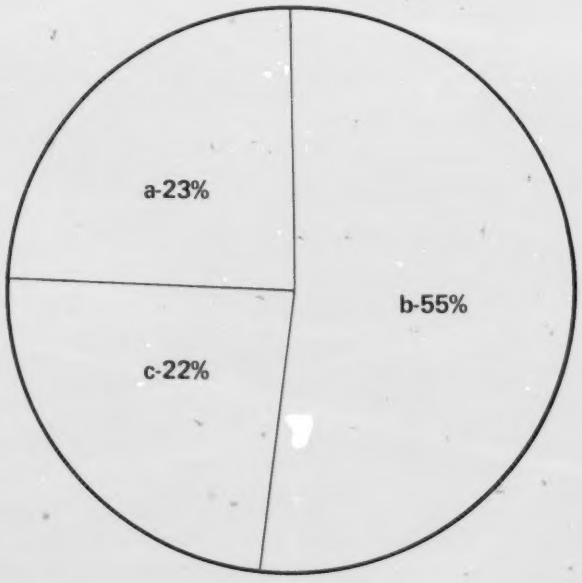
a. Local
b. Non-local

5. Annual disposition by percentage of student body:



a. Currently/continuously enrolled students
b. Students who have completed program at ILC
c. Students who have dropped from a program at ILC

6. Employed and unemployed students by percentage of student body:



a. Employed students
b. Unemployed students
c. Part-time employed

General Characteristics

Students at the Independent Learning Center vary greatly from the most intelligent to the least intelligent, from welfare recipients to the wealthy, from felons being rehabilitated to elected governmental officials, from regularly employed to chronically unemployed, from physically fit to severely handicapped, and from emotionally stable to emotionally unstable. All come to the Independent Learning Center with a desire to improve their lot, to increase their understandings, or to gain skills and abilities. Because of the Independent Learning Center's flexible structure, general and specialized curriculums, and individualized teaching methods, none need be turned away, and all may be served.

CHAPTER III

The ILC Student from Entrance to Exit

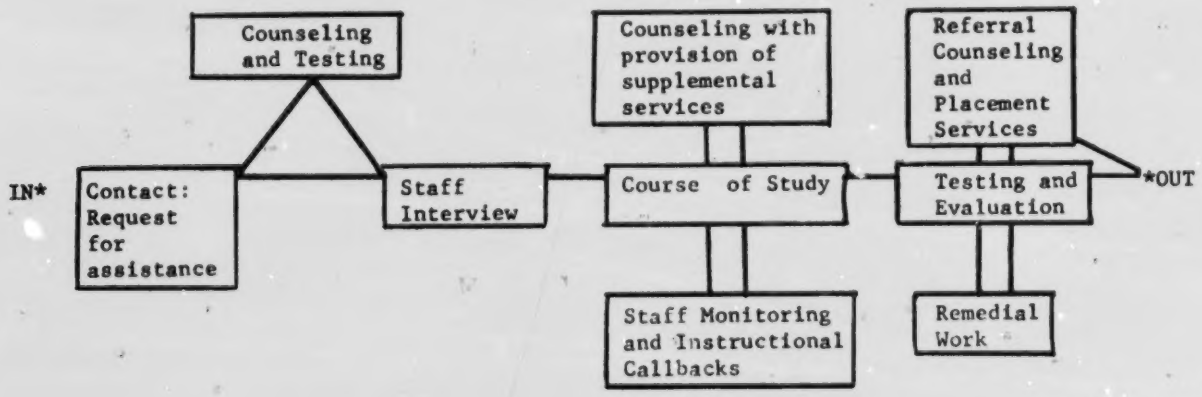
By a Hawkeye Institute of Technology Staff Writer

The purpose of this chapter is to provide a basic guideline for the orientation and processing of students as they progress through the various learning experiences at an Independent Learning Center. Each Center should devise its own system for processing; however, the system outlined in this chapter has proven effective at Hawkeye Institute of Technology's Independent Learning Center and may serve as a model.

The following chart demonstrates the typical procedures through which a student passes from entrance to exit at HIT-ILC.

A student may first learn of the ILC through another agency, public relations and media advertisements, advise of friends, or some other source. This leads to the initial contact or request for assistance. Often the initial contact between a potential student and the ILC is a phone inquiry. In talking to a potential student over the telephone, the instructor or counselor must (a) give the caller enough information and background to establish the relevance of the ILC in meeting his educational needs, and (b) create a desire for the caller to come in and investigate further. Once a caller has been interested in a program it is best to set up an appointment. The caller's name, address, and telephone number should be recorded on the appointment card or sheet so that a follow-up call can be made if the caller fails to keep the original appointment. People frequently fail appointments because they are apprehensive about what may be involved or because they simply forget. A second telephone call is needed in order to handle these problems and/or to create enough interest within the potential student to motivate his coming in. When setting up the appointment, the caller should be informed of the exact location of the ILC, the location of the room or office in which the meeting will take place, and available parking facilities.

The counseling interview should begin when the potential student arrives. Hawkeye Institute of Technology has employed a full-time counselor in order to provide adequate career exploration and counseling for potential students. The counselor should first put the student at ease by taking a genuine interest in him and encouraging him to talk about himself. It is important to gain the confidence of the student so that he is willing to discuss matters freely. Students applying for admittance to the ILC have a variety of needs and personal reasons for wanting to participate in the programs offered. The potential student may want to complete high school, gain skills in order to find employment, win recognition, gain advancement on the job, meet the minimum standards for admittance to training programs, accomplish some other goal, or may have a vague undefined feeling that he wants to improve his life in some manner. The more the counselor knows about the potential student, the better he can help that student. The establishment of specific educational goals by the student is essential to the development of individualized curriculum and learning procedures since the entire learning process is based on individual needs and goals. Since many students are not certain about their goals and abilities, they welcome aptitude testing and career exploration experiences. Information on training costs, financial aids, job placement services, and other available services and programs is of interest to all students. Providing counseling services and information on available programs and services is an important part of the interview-counseling process. After putting the student at ease, obtaining sufficient information about the potential student, and conveying basic information about the ILC, the counselor should assist the potential student in clarifying basic educational goals. In assisting the potential student to clarify goals, the counselor may, if necessary, provide diagnostic aptitude and career testing. Any specific questions the student has should be answered and any needed referrals discussed and made.



The student should then be introduced to the Learning Center instructor who will follow through on the diagnostic achievement testing and set up the program with the student. When the Learning Center does not have an independent counselor, the instructor must handle both tasks. When there is an indcpendent counselor, it is necessary that he provide the instructor with all pertinent information about the student that may affect course selection and content. The instructor will then:

(a) Review the educational goals of the student.
(b) Review the aptitude tests.
(c) Perform any additional testing for the determination of levels of competence.
(d) Assist the student in selecting courses of study and study procedures.
(e) Monitor the student's work until the completion of the selected courses of study.

Some students will be apprehensive about taking tests; however, these evaluative tests are essential in determining educational or career goals, or in determining the level of competence which the student possesses in various areas of study. Either the counselor or the instructor will be administering the tests, and it is their responsibility to make the student feel comfortable and prepared. The goals of the student dictate what skill testing is needed, but not the quantity of testing or the times at which tests should be administered. If too many tests are administered initially, the student may become discouraged by the seemingly overwhelming amount of study needed to reach his established educational goals. In many instances, one or more brief tests are sufficient to establish immediate educational objectives and design course work. Additional tests may be administered later if necessary. After establishing goals and levels of competence, the instructor must explain in detail the meaning and procedures of the selected courses of study to the student. The Learning Center situation is new to the student and he may have difficulty understanding it. The instructor must show the student how he can go to school, whenever he wishes, work at his own speed, and be successful. This introduction to the selected courses of study should help to ease negative memories of past classroom experiences which may have led to failure. Verbal explanations of the Learning Center situation may need to be repeated in order to ensure the student's understanding of ILC procedures and policies. At this point a written introduction to the ILC and to programmed materials in the form of a student handbook can be helpful. An example of such a handbook can be found in the Appendix.

The instructor must explain realistically what programmed instruction and supervised independent study mean. Both the advantages and disadvantages should be thoroughly discussed. In addition to the factors already considered, the interview between the instructor and the student should also cover the following areas:

(a) If the student wishes to take the high school equivalency tests, the instructor should thoroughly explain the testing procedures including where and when to take the tests and the scoring system. It is also helpful for the instructor to brief the student on preparation methods and time requirements. (Usually the time required to prepare for the first test is between sixty and eighty hours.) The student's normal apprehension should also be eased by the instructor through dialogue and positive reinforcement.
(b) All time requirements should be thoroughly explained to the student.
(c) Disadvantages of the programs and problems that might be encountered should be carefully reviewed and faced.
(d) All questions should be answered.

One of the most vital elements in the interviews involves the committment of the student to the program. The importance of this cannot be over emphasized. The student must be committed to expending the needed effort to succeed and must have a realistic knowledge of what is required. The responsibility to succeed is with the student; the staff is available to help but can not do the work for the student. When the student has clarified his goals, has completed the appropriate placement tests, understands the functions and procedures of the Center, and has made a committment to completing an independent learning program, he should be assisted by the instructor in selecting needed courses. It may be beneficial for the student to preview materials which may be used in the course work to ensure their suitability. It is important that the student begin with materials easy enough for him to experience initial success since early failure can easily lead to dropping out of the ILC.

In completing the interviewing procedures the student should:

(a) Fill in an application form.
(b) Pay any appropriate fees or tuition charges.
(c) Be introduced to the record keeping procedures that will be utilized in monitoring, supervising, and recording his work.
(d) Be introduced to the procedures for obtaining, using, and returning books and other educational materials.
(e) Be given course schedules which outline the work to be performed.
(f) Perform necessary tasks such as obtaining written permission from public schools before taking courses if of public school age.

The student may choose to begin work immediately after the interview or may return at a later date. The counselor should be informed when work has begun and should be given any information pertinent to the selected courses of study. On the first day of work the student should be visited by the instructor several times during the working period. Some programmed textbooks are difficult to follow and a beginning student may need more assistance. The instructor should be sure that the student is working effectively and efficiently and feels at home. The instructor, of course, will need to audit the student's work regularly, check attendance, discuss tests, give encouragement, and assist the student in meeting educational challenges. If the student encounters difficulty with the materials, the instructor should provide alternative or augmented materials, prescribe remedial materials, or provide individual instruction. The instructor must maintain involvement with the student throughout the courses of study in order to be aware of the student's needs and problems and thus provide the instruction and services needed by the student to successfully complete the program of instruction. Additional counseling and various other services may be required by the student and should be provided during the learning process. At the completion of the course of study, each student is tested and evaluated. Depending upon evaluation results, each student will be:

(a) Referred for counseling.
(b) Referred for services such as MDTA programs, Employment Service programs, etc.
(c) Provided placement services.

INDEPENDENT LEARNING CENTER

STUDENT LIST

Name & Address				Zip	
Date of Birth			Last Grade Completed		
Date Enrolled	Program	Name of Course	Date Completed	Total Hrs.	Grade

(d) Provided remedial work.
(e) Graduated.

This completes the process through which the student moves in his encounter with the Independent Learning Center.

Various records and forms in addition to those already discussed are necessary for accurate record keeping of a student's progress at the ILC. Among them is a permanent record card which should be kept for each student. All courses and grades should be recorded on this along with other information from the application. At HIT, each student in the ILC is assigned a student number which is also recorded on the record card. (See above)

A file folder is needed to keep the student's application and test papers. Another record maintained should include previous high school transcripts. A record summary and worksheet of courses needed and earned for high school completion students should be devised to be kept with transcripts. Grades for completed courses should be recorded on the worksheet as well as on the permanent record card shown previously. The number of hours a student studies should be accumulated regularly, either monthly or quarterly, and placed on a permanent record sheet for auditing purposes. Examples of the latter two forms can be found in the Appendix.

Various forms may be needed to record completion of a course of study. Among the forms may be a report card form used in transferring high school credit grades to public schools. (Sample on page 13.)

For those students not wanting credit or grades, a certificate of completion can be issued showing that the course has been successfully completed.

If a student does not complete his courses of study and his attendance becomes irregular, it may become necessary to contact him and discuss the situation. At HIT-ILC, an absent student is always contacted within a month and again after two months. If the student does not return after being contacted, his records are placed in an inactive file. If he returns within a year, his records are reactiviated. If he does not return within a year, all records except the permanent record card, transcripts, and high school credit worksheets are destroyed. New records are begun if and when the student returns after one year of absence.

Whether a student completes a course of study the first time he enrolls in the ILC or must return a number of times to do so, it is important that he receives support, encouragement, and a clear understanding of what is expected of him. The various orientation and counseling procedures discussed in this chapter can contribute significantly to the student's success when provided appropriately and effectively.

HAWKEYE INSTITUTE OF TECHNOLOGY

Adult Education

Waterloo, Iowa 50704

STUDENT PROGRESS REPORT

Name _____ **Quarter** _____

Program _____ **Date** _____

Course	Grade	Credit	Hours Attended	Teacher
1.				
2.				
3.				
4.				
5.				
6.				

A - Excellent *B - Very Good* *C - Average*
D - Below Average *F - No Credit* *I - Incomplete*

Coordinator _____

CHAPTER IV

ILC Programs and Activities

By Hawkeye Institute of Technology Staff Writer

The purpose of this chapter is to provide some guidelines for curriculum development and the use of materials in Independent Centers. High school completion for adults is the most common Independent Learning Center program and, therefore, will be the first area of concern. Since most adults will choose the high school equivalency or GED testing program for high school completion, the development of courses of study or learning units for preparation in the five required subject areas—English, social studies, science, literature, and mathematics—is the first curricular need that must be met at an Independent Learning Center. Many adults need only a short review of the required basic skills and knowledge before taking the GED tests. There are several good programmed GED preparation kits published that will provide an adequate program. A variety of materials must be provided in order to allow students to choose those materials and learning procedures that are suited to their individual learning modes. Variety is necessary in any ILC curriculum. A bibliography of materials used at Hawkeye Institute of Technology's Independent Learning Center is included in the Appendix. This bibliography will provide sources of materials for further consideration.

Staff experience with the curricular materials and reviews of the sections of progress tests which are often failed by students will determine the need for additional worksheets or other aids to supplement the basic published programs. Such developed materials should be interjected into the courses of study or learning units as needed. Even with programmed materials, worksheets and other aids should be developed by staff members for those students encountering difficulty with certain subject areas or with certain materials.

Pre-testing, especially of reading skills, will establish the functional level of individuals and assist in the selection of appropriate materials for students. Do not attempt to place upper level materials with students who function with lower level skills. Failure will impede the ILC student, for success is a major motivating factor in the life story of any ILC student.

Most educators find that students often can assimulate all the review materials except for mathematics. If mathematics is difficult for students, then the published review materials will probably not successfully meet the educational needs of those students. In these circumstances, staff members should find or develop more individualized and comprehensive materials. Students who encounter difficulty with mathematics often need to review only certain problem areas, and therefore, math placement tests should be administered before special math study schedules are established. Students should not be made to study areas where they are competent. In order to pass GED tests, students should be competent in all the traditional areas of mathematics and have some understandings of statistics, graphs, geometry, and modern math vocabulary. Since algebra is needed for GED testing, it is important that a basic explanation of algebra be made available to students. *Preparing for Algebra* is an excellent source book for such a purpose.

Students who do well in most of the GED testing series often find English grammar, punctuation, and spelling difficult. Placement tests should be administered to these students and appropriate materials such as *Blumentaal's English 2200* or *English 2600* should be provided.

Only one more basic skill is needed to pass the GED tests and that skill is reading. It should be noted that the remaining three GED tests—social studies, science, and literature—are usually combined under the reading skills category, e.g., these tests, in fact, essentially test reading ability. While GED series books provide a good study program for these tests, they do not improve reading skills. A good reading program is far more difficult to develop than the previously discussed programs. Much time and effort must be expended in order to develop a comprehensive reading program. Since individual study requires basic reading ability, there is a point at which low reading ability may prohibit a student from entering a reading course. Experience has shown that students reading below a fifth grade level should be put into special low-level skills programs such as those offered through Adult Basic Education. An ILC reading program should start at the fifth grade level and progress from there. If there is a secret to a good reading program, it seems to be found in the variety and diversity of the reading materials which cover the basic skills involved in the course of study or learning unit. Programmed reading is a good method for improving reading skills. Materials on study habits and test-taking are often a valuable part of a reading program. For an adequate reading program, it is important that each instructor be familiar with all reading materials and resources, that students be given freedom to choose materials, that schedules be flexible, and that students succeed.

The five basic areas of study for GED testing may also provide the general curriculum for the improvement of reading, mathematics, and English skills. Course materials developed for GED study may also be used by any student interested in high school level work in the five skill areas. Students enrolled in colleges, high schools, or trade schools, may use these programs for remedial assistance. An agreement with interested educational institutions may allow students to obtain credit for their work in these programs. The same courses may also provide help for those students who desire to "brush up" or im-

prove their skills before entering educational institutions, training programs, or the employment field.

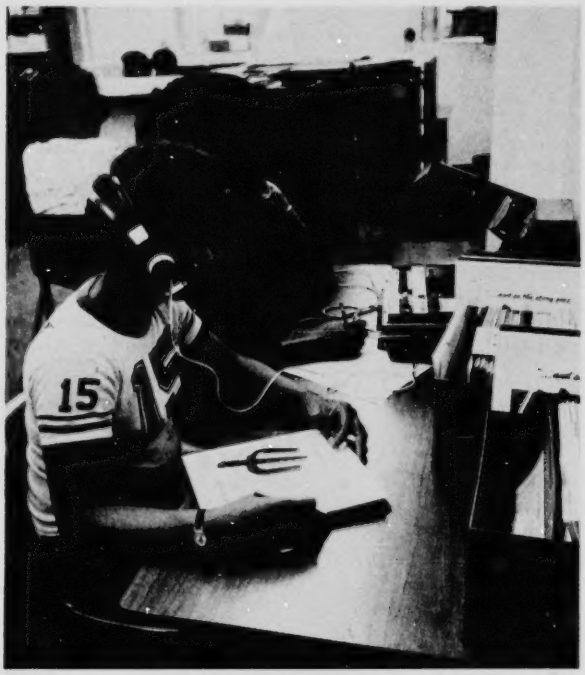
The second area of concern is the need for review courses in typing and other clerical skills. Many clerical skill programs may be purchased as learning-packages and are suitable for high school credit. Also, if there is a need for the provision of an adult high school diploma program, courses such as advanced English, science, advanced mathematics, history and government may be added to the general curriculum as required by law.

The third area of concern is that of mini-units or mini-courses. Smaller units of course work may often be developed out of longer courses of study in order to provide mini-courses. A mini-course such as "How to balance your checkbook," may be developed by utilizing one section of a recordkeeping course and various sections of basic math courses. The variety of programs that can be devised and the range of needs that can be met are limited by only two things: resources and imagination.

Programmed materials provide an effective basis for curriculum, but they should not be used exclusively. Lectures may be presented through cassette tape recordings. Slides, 8mm film loops, graphs, charts, and worksheets may be used with accompanying cassette tapes or individualized instructions as appropriate. Group discussions may be used when relevant to all members of the group. Tours may also prove valuable in providing educational resources. One tour may be taken by six students studying six different subjects for six different reasons. Records, filmstrips, games, guest lecturers, demonstrations, projects, and a variety of community resources can also be used in meeting the needs of students. All educational materials or techniques that can aid the learning process should be used.

The role of the ILC instructor is that of a "learning resource coordinator" who, in partnership with the student, makes available materials and techniques which will aid the student's quest for knowledge. Instructors should always realize that basic purchased programmed materials are means and not ends. If any individual student desires, and it is within reason, it is well to eliminate undesirable sections of standardized materials and substitute higher interest materials of the student's choosing. The objective of the ILC is for students to learn. If the purchased program materials work, excellent; if they do not work, change them, augment them, or discard them. When the need to use specific materials is more important to the instructor than meeting the individual needs of students, then ILC students begin to leave. ILC instructors must ensure that each student has materials of personal interest and sound educational value.

A good general curriculum at an Independent Learning Center is typified by (a) a wide variety of materials which serve a wide range of needs in a number of varied subjects, and (b) a wide variety of methods and techniques for the presentation of those materials.



CHAPTER V

Programmed Instruction

By Dr. W. Travis Martin

Preface to Chapter V .....

The following article is Chapter II of a dissertation authored by Walter Travis, Martin, Jr., Ed.D., entitled, "Fundamentals Learning Laboratories in Industrial Education Centers, Technical Institutes and Community Colleges in North Carolina."

This article has been extracted from the dissertation and printed in this form in the hope that it will be of value in explaining some of the history, background, development, philosophy, and concepts in the field of programmed learning, sometimes referred to as programmed teaching or instruction. Although this article briefly mentions Fundamentals Learning Laboratories, this concept parallels Hawkeye Institute's Independent Learning Center and the basic principles and philosophy are also incorporated in the Independent Learning Center. There does exist one major difference in the Independent Learning Center—a greater effort is made to coordinate the Institute's general curriculum programs with the Independent Learning Center.

In general, while the Independent Learning Center is concerned with imparting fundamentals just as the Fundamentals Learning Laboratories do, its total concern is that of total involvement in all phases of Hawkeye Institute's educational program. This, of course, encompasses the application of programmed instruction to the Institute's regular curriculum programs where practical.

Walter Travis Martin

Programmed Instruction

The educational philosophy of the Fundamentals Learning Laboratories is centered around programmed instruction. Since the coordinator responsible for the operation of the laboratory does not teach, the task of instruction is delegated to programmed materials. Therefore, a brief survey of these materials is presented here.

Only in recent years have the words, *teaching machine, programmed instruction,* and *programmed learning,* become terms frequently mentioned in pedagogical discussion.

> In the past few years teaching machines have attracted the attention and interest of teachers, school administrators and training directors. The reason is that programmed learning materials have been shown to be surprisingly effective.[1]

A brief glance at the Educational Index demonstrates the dramatic growth of publications in this area. Between June 1957 through June 1959 the category of *Programmed Teaching* was not used in the *Index.* Although the category of *Teaching Machines* was listed, it referred the reader to *Teaching Aids and Devices* under which only one article was reported. In the following two-year period (July 1959 through July 1961), the category of *Teaching Machines* was added to the *Index* and eighty-two items were listed. During the same period the category of *Teaching Machines* listed fifty-one items. Furthermore, between July 1961 and June 1963 a total of 327 items were listed under the categories of *Programmed Teaching, Programmed Textbooks,* and *Teaching Machines.*

Today programmed instruction has expanded to affect many areas of our society. The North Carolina Department of Community Colleges with its affiliated Fundamentals Learning Laboratories has expanded its program to encompass adult educational and vocational upgrading. Donald A. Cook, Director of Programming for Basic System, Inc., points out five reasons why programmed instruction is relevant to such upgrading:

1. The active response by the learner to each frame of a program seems particularly important when the material to be learned is new or unfamiliar . . . .
2. . . . the frequent experience of success with programmed instruction. For groups whose educational histories so far have been painful, who have experienced little satisfaction in learning, and who are unsure of their capacity to get something right, this aspect of program design may bring special benefits.
3. . . . programmed instruction is likely to be of importance to groups who are alienated or for whom the challenge of new learning may seem threatening . . . .
4. . . . self-pacing allows the slow or uncertain learner to take his time without being penalized for his inability to keep pace with an arbitrary rate that is imposed from without upon an entire group.
5. . . . the manner in which programs are developed and tested . . . gives us an invaluable research tool in the job of skill upgrading.[2]

History of Programmed Instruction

Some may hail programmed instruction as a revolutionary new approach to teaching, but it is evident that many of the basic ideas emphasized in the development of programmed materials have been with us for many years.

Socrates taught by breaking down information into small parts and progressing toward a teaching goal through a series of questions designed to lead the student to insight.[3]

Later, in the first century A.D., Quintillian gave advice which, although unheeded for centuries, has

[1] Edward B. Fry, *Teaching Machines and Programmed Instruction. An Introduction* (New York: McGraw-Hill Book Co., Inc., 1963), p. 2.

[2] Donald A. Cook, "Problems of Training and Retraining," *Management Bulletin Number 22* (New York: American Management Association), pp. 4-5.

[3] Professional Growth for Teachers, *Teaching Machines and Programmed Learning,* Vol. 7, No. 5 (New Lond: Croft Educational Services, 1961), 2.

proved compatible with today's research findings in the area of human learning: "Let the individual student be questioned and praised. Let him never feel pleased that he does not know something. Let him strive for victory, yes, but let it be arranged that he gains it. In this way, we draw forth his powers."[4]

Somewhat more recently, John Amos Comenius, a Moravian bishop, philosopher, and educator, set down guidelines for those who teach. It is interesting to note that the thinking of Comenius in the seventeenth century closely follows the principles advocated by leaders in the contemporary movement toward greater emphasis on programmed instruction:

1. All things should be taught in due succession, and only one thing should be taught at a time.
2. Nothing must be learned by rote; comprehension is the light of memory and we should see that whatever has been presented is also understood.
3. Whatever is taught should be taught (in a) straightforward, and not in a complicated manner.
4. Order, position, and connections of objects should be studied.
5. A subject should not be left until it is thoroughly understood.
6. Stress should be laid on the differences which exist between things, in order that knowledge may be clear and distinct.
7. Learning should proceed from the known to the unknown.
8. Instruction should be fitted to the comprehension of the learner.
9. Children must learn to do by doing.
10. In every subject that consists of several parts, these parts should be linked together as much as possible.[5]

Although records indicate that teaching machines have existed for many years, it was not until this century that the term *teaching machine* was coined. An earlier "teaching machine" was the quintain, used for the training of knights during the middle ages. In its most elaborate form it was a figure of a swordsman holding a shield. The figure, holding a flail, a sword, and a sandbag or wooden bat in its hands, was mounted on a pivot. The knight on horseback, tilting with his lance at the quintan had to strike exactly in the center. If he failed to do so, the quintain would pivot and give him a sharp negative reinforcement on his back as he rode by.[6]

In the United States devices designed to aid in the teaching process are recorded in the Government patent office. The earliest patent of a "teaching machine," issued to H. Chard on February 16, 1809, was for the teaching of reading.[7] It was not until 1870 that there appeared a vigorous output of educational inventions. After 1870, "each succeeding year saw a continual increase in the output so that up to the present (1936) time there are between 600 and 700 inventions issued on the subjects of teaching and education."[8]

In 1915 Sidney L. Pressey, then at the University of Ohio, began to make a deliberate effort to mechanize testing.[9] He saw testing and grading as a time consuming activity for the teacher. Later Pressey discovered that his testing mechanisms could teach as well as test. However, it was not until 1926 that he published an article announcing the development of a teaching machine from his testing machine.[10] This was the first published reference to the term "teaching machine."[11] Pressey made clear his reasons for developing a teaching machine, but he also recognized that there would be objections to the device:

> Educators are, of course, almost always conservative, and comparatively, a teacher's time is cheap. The result is that there are at present many things done in our schools and colleges in very unnecessarily labored and enthusiasm-killing fashion. The writer is convinced that mechanical aids are possible which would do much to relieve the situation. These aids would probably do their particular work better (just as a calculating machine is more accurate than the old-time clerk).
>
> The writer's suggestions may very well provoke some sentimentalist to an outcry against "education by machine." What the writer is urging is a freeing of the teacher from the mechanical task of her program—the burden of the paper work and routine drill—so that she may be a real teacher, not largely a clerical worker.[12]

Sidney L. Pressey had ushered in a new era for American education; but in spite of his efforts to sell his teaching machine to American educators, his invention was not accepted.

The concept of the teaching machine seems to have faded from the educational screen until the early 1950's when it was revived by B. F. Skinner, an experimental psychologist from Harvard University. Through his laboratory experiments with animals, particularly with pigeons, Skinner formulated a theory of learning.[13] From this theory of learning developed in the laboratory, he proceeded to design a mechanism which could be used by people to learn information.[14] However, Schramm points out that Skinner's techniques of learning were not entirely new because the idea of immediate knowledge of results had been demonstrated by Pressey. Moreover, student workbooks for years had been developed on the assumption that constructed responses are valuable experiences in the learning process.[15]

Although there are many other men who have made contributions to the field of programmed instruction, only a brief overview of the field has been included in order to indicate the increasing importance of this method of education as demonstrated by the Fundamentals Learning Laboratories within the North Carolina Department of Community Colleges.

The field of programmed instruction is so young that the first book to be published, *Automatic Teaching: The State and the Art* (edited by Eugene Galanter) appeared in 1959. It included a series of papers presented in December of 1958 at the University of Pennsylvania in a symposium under the auspices of the Air Force Office of Scientific Research.[16]

Approaches to Programming Instruction

Prospects seem favorable for continuing growth in the use of programmed instruction. Several hundred

[4] *Ibid.*, p. 2.
[5] John D. McNeil, "A Great Didactic and Automated Teaching," *Education*, LXXXI (May, 1961), 567.
[6] *American Behavioral Scientist*, Vol. IX, No. 9 (May, 1961), 38 (picture of a quintain in use is found on cover).
[7] Ibert Millian, "Teaching and Educational Inventions," *Journal of Experimental Education*, Vol. 4, No. 3 (March, 1936), 291.
[8] *Ibid.*, p. 291.
[9] Lawrence Stolurow, *Teaching by Machine*, *USOE* (No. OE-34010) 1961, p. 17.
[10] Sidney L. Pressey, "Device Which Gives Test and Scores—and Teaches," *School and Society*, Vol. 23, No. 586 (March 20, 1926), 373-76.
[11] Fry, *op cit.*, p. 17.
[12] Pressey, *op. cit.*, p. 376.
[13] B. F. Skinner, "Science of Learning and the Art of Teaching," *Harvard Education Review*, Vol. 24, No. 2 (June, 1954), 86-97.
[14] B. F. Skinner, "Teaching Machines," *Science*, Vol. 128 (Oct., 1958), 969-77.
[15] Wilbur Schramm, *Programmed Instruction: Today and Tomorrow* (New York: The Fund for the Advancement of Education, 1962), p. 19.
[16] Harry F. Silberman, "Self-teaching Devices and Programmed Materials," *Review of Educational Research*, Vol. 32 (April, 1962), 179.

thousand machines, ranging from simple devices to complex inventions having levers and knobs or controlled by electronic computers, have already been sold, and the trade anticipates a fifty million dollar business in ten years.[17]

With this increasing use of programmed instruction, many writers have offered definitions. Because of the variety of concepts of what constitutes programmed instruction, there is still no standard definition. It would be a natural assumption for one to conclude that "programmed instruction" is just another way of saying "automated instruction." However, it is possible to have programmed instruction that is not considered automated instruction. Mager explains the difference:

> We have programmed instruction whenever the program is presented to the learner according to the intended conditions. But only when the control is assumed primarily by the device should we talk of having automated instruction. The mere fact that a mechanical or electricial gadget is used to present a program does not necessarily mean the instruction is automated. Whether or not instruction is automated depends upon whether the presenting device assumes a major part of the responsibility for controlling the conditions under which the program is to be administered.[18]

Programmed instruction is based upon certain assumptions and principles. Baker points out that one basic premise of programmed learning is that the student learns most easily, efficiently, and thoroughly when he proceeds through a course by a large number of small, easy-to-take steps.[19]

Although there is not complete agreement on the psychological principles involved in programmed instruction, the following points are some which are fairly common:

1. The subject matter is broken up into small units called frames. In actual practice these frames usually vary in size from several sentences to several small paragraphs.
2. At least part of the frame requires some type of response from the student. He must answer a question or fill in a blank. Active participation on the part of the student is required. Generally, it is desired that the activity also demonstrate understanding of the material.
3. The student is provided immediate feedback reinforcement. He is told the correctness of his answer which has the advantage of immediately reinforcing the activity or immediately correcting a misunderstanding. Since many programs are written in such a way that the student is right a high percentage of the time, the act of telling the student that he is correct becomes a reward or reinforcement. Thus programs have a much higher amount of reward or reinforcement than most ordinary teaching situations.
4. The units are arranged in careful sequence. Because the subject matter is broken into small bits, the author must think carefully about the learning steps involved, and the result is a much better sequence of presentation. Careful sequence also embodies the notion of shaping or gradually leading the student toward the desired goals by rewarding him for activity that more and more closely approximates those goals.
5. Programs are aimed at specific goals. This has the desirable effect of making those involved in training evaluate their goals much more carefully and specifically.
6. Revisions are based on student responses. Because the student's behavior can be recorded for each frame, a knowledge of his understanding of each part of the lesson can be easily obtained. Thus, if a student is making many errors on one section, the program obviously is not teaching well and must be revised. Here, then, is another cardinal principle of programming; namely, that the student is the final authority in determining whether or not the program is good. In traditional curriculum materials an "expert" often determines the final presentation, but in programming the approach is more student-centered. Programs are also more carefully aimed at a particular ability level of student based on experimentation, not on opinion.
7. The student is usually free to vary his own rate of learning. A student may work through a program rapidly or slowly. He is completely independent of others in the class. Traditional methods such as lectures or motion pictures force every student to proceed at the same rate, which might be too fast for some and too slow for others.[20]

A distinction should be made between the terms *program* and *teaching machine.* The program is the heart of the teaching machine. It is the source of the systematic computation of data. The teaching machine is simply the device which presents the information to the student in a controlled manner. A teaching machine is of little value to the student unless it contains a program. In the beginning all programs were designed to be used in teaching machines, but a number of programs are now appearing in book form and are referred to as *programmed texts.* They have been well received and, at least for the moment, there appears to be no significant basis for declaring one form superior to the other.[21] ". . . the machine or book is little more than a case to hold the program. The program is the important thing about programmed instruction."[22]

Today the expression "teaching machine" seems to be the most popular term used to refer to all programmed materials. However, many educators are opposed to this term and have suggested such alternate terms as *self-instructional devices, auto-instructional devices, programmed instruction,* etc.[23]

Educators have objected to "teaching machine" because this term fails to give an accurate description of the system or method. It leads uninformed teachers to object that the method "de-humanizes" the teaching process by eliminating the human factor, the teacher. Such an idea, however, is a misconception on the part of such teachers. Philip Lambert thinks that misunderstanding of what programmed learning really is has been one of the reasons why educators have been slow to accept it.[24]

Today there is a movement away from the term *teaching machine* toward the use of *programmed instruction,* which tends to be more descriptive of the whole field. The name of a new national organization dedicated to this area, National Society for Programmed Instruction, reflects the increasing use of the term *programmed instruction* in lieu of *teaching machine.*

Classification of Programmed Instruction

Educators have offered a variety of proposals concerning the proper classification of the programmed materials which have been developed. Taking into consideration student response, one system of classification of these teaching devices has been developed according to student behavior. According to this classification,

[17] William Clark Trow, *Teacher and Technology: New Designs for Learning* (New York: Appleton-Century-Crofts, 1963), p. 91.

[18] Robert F. Mager, "The Elements of Programmed Instruction," *Management Bulletin No. 22* (New York: The American Management Assoc., Inc., 1962), p. 17.

[19] Anthony Baker, "Elements of Automated Teaching," *The American Behavioral Scientist,* Vol. 4, No. 9 (May, 1961), 10.

[20] Fry, *op. cit.*, pp. 2-3.

[21] *Ibid.* pp. 6-7.

[22] Schramm, *op. cit.*, p. 1.

[23] J. D. Firm and Donald G. Perrin, *Teaching Machines and Programmed Learning, A Survey of the Industry, U.S.O.E.* (1962), pp. 14-15.

[24] Philip Lambert, *The Teacher and the Machine* (Madison, Wisconsin: Dembar Educational Research Services, Inc., Vol. 55, No. 9, June-July, 1962), 406.

teaching devices are divided into three groups: (1) stimulus devices, (2) response devices, and (3) stimulus-response devices.[25]

Currently programmed instruction is most frequently subdivided into two main categories based on two schools of thought concerning programming. Programs in these categories are referred to as either *linear* programs or *branching* programs. A third group, combining methods from both linear and branching programs, has come into existence more recently.[26] In general, authorities do not object to the use of the term "linear," but the term "branching" is objected to by some authorities. Crowder, for example, prefers the term *intrinsic programming:*[27] "The term 'intrinsic programming' simply refers to the fact that the necessary program of alternatives is built into the material itself in such a way that no external programming device is required."[28]

Other writers refer to "branching" programming as "adaptive" programming[29] because the program adapts itself to the specific response of the individual student.

Linear Programming

Consideration will be given to the linear approach to programming first. A linear program is designed in such a way as to require all students to read every frame or step in the program sequentially. Each step requires the student to respond to the information presented in the program. Within "linear" programming there are two divisions corresponding with two different methods or types of responding. One type of response was developed by Sidney L. Pressey and the other by B. F. Skinner.

Pressey Type of Programmed Instruction

In the 1920's Sidney L. Pressey developed the multiple-choice linear program. However, his primary objective in the development of his teaching machine was not teaching but the automatic presenting and scoring of tests. He wanted to free the teacher from this time-consuming task. With this objective in mind, he explained:

> The average teacher is woefully burdened by such routine of drill and information fixing. It would seem highly desirable to lift from her shoulders as much as possible of this burden and make her freer for those inspirational and thought-stimulating activities which are, presumably, the real function of the teacher.[30]

It was not until later that Pressey noticed something he had not anticipated. He discovered that the students who used his testing apparatus learned more rapidly through this procedure.[31] Consequently, he developed a device to present carefully sequential problems which would do the following:

1. Allow each student to react immediately (by pushing a button).
2. Provide the student with immediate knowledge of results by telling him whether his answer was correct or incorrect.
3. Permit the student, when his answer was incorrect, to continue trying until he made a correct response.
4. Record for further analysis, the cumulative results of student responses.[32]

The justification for his multiple-choice linear program is based on the three laws of learning, the laws of recency, frequency and effect.

> The somewhat astounding way in which the functioning of the apparatus seems to fit in with the so-called "laws of learning" deserves mention in this connection. The "law of recency" operates to establish the correct answer in the mind of the subject, since it is always the *last* answer which is the right one. The "law of frequency" also cooperates; by chance the right response tends to be made most often, since it is the only response by which the subject can go to the next question. Further, with the addition of a simple attachment the apparatus will present the subject with a piece of candy or other reward upon his making any given score for which the experimenter may have set the device; that is, the "law of effect" can also be made, automatically, to aid in the establishing of the right answer.[33]
>
> The influence of his (Pressey's) work has been strongest in industry and in the military services. The military has given a great deal of attention to the development of instructional devices based on his techniques.[34]

Skinner Type of Programmed Instruction

The second type of linear programmed instruction, the constructed response linear program, was developed by B. F. Skinner, a professor of psychology from Harvard University. His design was based on his experimental work with animals during the 1950's. As a result of his research, Skinner believes that when the student is required to recall and construct his response he learns better. He has two reasons for preferring the constructed response:

1. Recall is more efficient than recognition in the learning process (according to Skinner).
2. The act of *responding tends to cause learning*; therefore, the student should not be exposed to incorrect alternatives.[35]

Goldsmith points out that the main features of the Skinnerian linear program are as follows:

2. Material is presented in small incremental steps so that each frame, while adding to the student's knowledge, offers the minimum difficulty to him.
2. Every aid is given to the student. For example, where necessary, cues are provided to indicate a correct response, and then as learning proceeds, they are gradually withdrawn or "faded" in later frames.
3. To each frame a student has to make a constructed response. In practice this may mean no more than filling in a missing word from a sentence.
4. Once he has responded the correct answer is immediately given to the student.
5. Whether he was right or wrong the next frame is then presented. Thus every student irrespective of his responses sees the same sequence of materials.
6. Students proceed at their own rate of performance.[36]

Programs of the Skinner type differ in technique from all other programs because they are constructed in accordance with basic principles which Skinner derived from his laboratory.[37] Earlier developments had been organized around the concept of individual differences,

[25] Douglas Porter, "A Critical Review of a Position of the Literature of Teaching Devices," *Harvard Education Review*, Vol. 27 (Spring 1957), 114.

[26] David Cram, *Explaining "Teaching Machines" and Programming* (San Francisco: Fearon Publishers, Inc., 1961), p. 15.

[27] N. A. Crowder, "Automatic Tutoring by Means of Intrinsic Programming," *Automatic Teaching: The State of the Art*, edited by E. H. Golanter (New York: John Wiley & Sons, 1959), Chapter 10, p. 109.

[28] A. A. Lumsdaine and Robert Glaser, *Teaching Machines and Programmed Learning: A Source Book* (Department of Audio-Visual Instruction, N.E.A., 1960), p. 289.

[29] James W. Brown, Richard B. Lewis, and Fred F. Harcleroad, *A-V Instructional Materails and Methods* (New York: McGraw-Hill, 1964), p. 251.

[30] Pressey, *op. cit.*, p. 374.

[31] Maurice Goldsmith, *Mechanization in the Classroom* (London: Souvenir Press, 1963), p. 32.

[32] Brown, et. al, *op. cit.*, p. 249.

[33] Pressey (1926), *op. cit.*, p. 375.

[34] Edward J. Green, *The Learning Process and Programmed Instruction* (New York: Holt, 1962), p. 127.

[35] Cram, *op. cit.*, p. 34.

[36] Goldsmith, *op. cit.*, pp. 29-30.

[37] *Ibid.*, p. 31.

but Skinner's work has grown out of the concept of conditioning.[38]

At this time, the Skinner program is in greater use than any other form of programmed materials. Nineteen out of twenty programs being made today are Skinnerian programs.[39]

Branching Programming

The second major classification of programmed instruction, branching, is a more recent approach. This concept has been developed by Norman Crowder. It looks much like Pressey's multiple-choice linear program with one main difference. Any choice made by the student leads ultimately to the desired goal, but each choice determines the next route or sequence of information to be presented. Branching, therefore, has been designed not to show the student that he is right or wrong, but possible consequences of his choice.[40]

Branching can be used in a variety of ways within the same program:

1. Branching, in an elementary form, can be used as a way of explaining why answers are wrong. After each explanation the student can be sent back to the last page to try again.
2. Branching can be used remedially to catch the student who does not understand what has been covered.
3. Branching can be used to enable the student with a good background to get through faster than the student who needs additional work.
4. Branching can be used to give the student a choice—he can judge how deeply he wants to go.[41]

Crowder considers the linear program an insult to the intelligence of the brighter student. When the student is moved along at a slow rate, being forced to cover every step whether he needs to or not, he may lose motivation.[42] This position is understandable since in the branching approach the sequential step size varies depending on the previous knowledge and understanding of the individual student. The primary sequence of the program may proceed more rapidly than in the linear program.[43] Should the student have difficulty proceeding along the main line, shorter, easier steps are made available which move him in parallel directions to the main-line sequence. Therefore, the brighter or faster student does not have to proceed through as many sequential steps.

In the majority of cases a branching program makes use of the multiple-choice technique. This technique, however, is not necessarily the only branching technique. Not as well known, but in use, is a branching technique which requires the student to construct his response. This system of programming, called the Sheffield System, was developed by the Department of Psychology of Sheffield University in England. In this system the student is required to construct the response by actually writing his answer on a card which he passes into the machine. Then the correct answer is automatically presented on the lower part of a screen, and the student compares his response with it. If his answer is correct, he punches "correct" key; if incorrect, the "query" key is punched. The latter brings up a special series of frames to give a more detailed explanation.[44]

When consideration is given to the branching approach to programming, it becomes evident that a complete program can become quite complex when all possible alternatives and explanations are included. With such complexity and with each student proceeding along different sequence patterns, it becomes obvious that keeping records on student progress would be approaching the impractical. Fortunately, this problem of records is being solved by computers that are programmed to present these complex patterns while recording and evaluating each student's work. Such computers are particularly helpful because they provide the teacher and student with immediate "feedback."[45]

It is evident that the branching program is designed to make adjustments to the individual's prior knowledge and understanding as well as his rate of comprehension. Because of these features, Stolurow suggests that the branching approach to programming can be more accurately described by "ability pattern programming."[46] Jacobs, for similar reasons, suggests the term "adaptive programming."[47]

Combination of Linear and Branching Programming

A third, but similar classification or group of programmed instruction consists of either special-purpose methods which combine elements from the two major groups, branching and linear.[48] Brown illustrates this parallel programming when he explains that the programmer may prepare two or more programs covering the same information and leading toward identical objectives under alternate procedures.[49] In addition, experimenters have shown that branching can be built effectively into a Skinnerian program.[50]

Comparison of Linear and Branching Programming

The various philosophies and theories concerning the development of a good programmed instruction vary. However, even though such variations exist, all philosophies strive toward the same objective, more efficient learning. In spite of the diversity of these approaches to learning, nearly all programmed systems have the following features in common:

1. The primary aim is to control the teaching procedure at each step.
2. The subject matter is analyzed into a carefully ordered sequence of small steps.
3. The student must make an overt response to each step.
4. He is immediately informed whether his response is right or wrong.
5. The whole operation is an individual procedure.
6. Each individual controls the pace of the operation to suit himself.[51]

The major differences between the two main divisions of programmed instruction, branching and linear, are as follows:

[38] Green, *op. cit.*, p. 128.
[39] Schramm, *op. cit.*, p. 8.
[40] Cram, *op. cit.*, p. 37.
[41] *Ibid.*, p. 38.
[42] Green, *op. cit.*, pp. 145-46.
[43] Cram, *op. cit.*, p. 41.
[44] Goldsmith, *op. cit.*, pp. 35-36.
[45] Laurance Stolurow, "Implications of Current Research and Future Trends," *Journal of Educational Research*, Vol. 55 (June-July, 1962), 523.
[46] *Ibid.*, p. 523.
[47] Paul Jacobs, "Some Relationships between Testing and Audio-instructional Programming," *A-V Communication Review*, Vol. 10 (Nov.-Dec., 1962), 320.
[48] Cram, *op. cit.*, p. 15.
[49] Brown, *op. cit.*, p. 254.
[50] Schramm, *op. cit.*, p. 14.
[51] Goldsmith, *op. cit.*, pp. 28-29.

1. Unlike the linear system which presents the same sequence of frames to all students, the actual frames presented in a branching program vary from student to student according to the response of each individual . . . .
2. Skinner's approach is based on his laboratory studies, and he is quite definite about the way to teach. His whole program is designed to give maximum reinforcement to required responses. The writers of branching programs are most modest and frankly eclectic in their approach. (Their model . . . is more the conventional tutorial situation where the student received information and indicates by his response the extent of his understanding.)
3. . . . the frames for the branching program tend to contain more material than a linear program, and the question at the end checks whether the teaching has been successful.[52]

Advantages and Disadvantages of Programmed Instruction

As the literature is examined regarding programmed instruction, teaching machines, and programmed learning, it becomes evident that much more has been written expounding the advantages of this instructional medium than its disadvantages.

According to *The Educator's Encyclopedia,* some advantages of teaching machines which have been established as a result of experimental use are as follows:

1. The student is able to work alone with a completely sustained activity.
2. The machine presents only one step at a time, so that the pupil proceeds only as he is ready to do so.
3. The machine . . . requires that the student understand each point as it is presented or review it before proceeding.
4. The machine especially helps the students to learn by its careful program and its well structured questions.
5. The machine's instantaneous response helps to hold the pupil's interest.[53]

Baker points out what he refers to as the "pedagogical advantages" of programmed instruction:

1. The student must participate actively in the learning process . . . .
2. Reinforcement is continuous . . . .
3. Mislearning is kept minimal.
4. Course material presented by a program is kept consistent from class to class and teacher to teacher.[54]

Philip Lambert points out that "programmed learning provides a unique opportunity to give each student a curriculum which is paced to him.[55] Such an advantage is one which must not be too readily overlooked in a time in which the emphasis necessarily is on mass education. There is evidence to establish that learning takes place when programmed instruction is used, yet the complete answer to how or why it works has still not been firmly established. Certainly it is the ambition of all educators to individualize education as much as possible, and programmed instruction seems to provide at least a partial answer. A brief statement by Stolurow is noteworthy: "It is clear that a variety of persons, from mental retardates to gifted graduate students, can learn from teaching machines. It now seems time for a concerted effort to tease out the factors which determine the effectiveness of instruction."[56]

It is important that the many advantages which have been sighted do not blind one to possible shortcomings of this media. Programmed instruction certainly cannot be considered a utopia for the educator. Although the literature does not place as much emphasis on its disadvantages, the following are listed:

1. The machines break down.
2. They are not standardized so that a program that fits one machine will fit another.
3. Their effectiveness often depends upon their novelty.[57]
4. More effective ways of displaying information need to be developed.
5. Many refuse to accept programmed instruction because it is a type of automation, which spoils the interaction between the teacher and the student.[58]
6. Some teaching machines are uncomfortable to use.
7. One of the limitations of the computer type of teaching machine is its cost.[59]

"There is a danger that some people may believe that teaching machines are too expensive and complex, thus making them impractical. This is not the case; some units are very simple . . . and most are nowhere near the complexity of a television receiver."[60]

Robert Mager points out that instruction as carried on in the traditional classroom differs in several respects from that of programmed instruction:

1. With programmed instruction the emphasis is on the individual rather than the group.
2. In standard instruction the blame for failure is placed squarely on the student. However, with programmed instruction, the program itself is blamed.
3. Another difference has to do with pacing. While standard instruction is for the most part group-paced, programmed instruction is individually paced.
4. Another difference is emphasis. Normally, in standard instruction the emphasis is on teaching, where teaching is defined as transmitting or exposing.[61]

Future

At the present stage of development in programmed instruction, it is still difficult to predict a secure future in spite of the fact that in the majority of cases the literature tends to make optimistic predictions. Although present research findings leave little doubt that the programs do teach, there seems to be very little actual evidence to prove that the constructed response advocated in Skinner's theory is in most cases any better than a selected response, or a sub-vocal response, or no measurable response at all.[62] Schramm points out that programmers are taking for granted a number of devices and rules of programming that are far from being adequately understood or confirmed by the evidence.[63]

It is imperative, therefore, that the state of the new approach to learning remain subject to continual improvement. "But this does not deny the usefulness of existing technology any more than the prospect of a nuclear powered car denies the usefulness of a conventional automobile."[64]

The programs found in today's teaching machines and

[51] *Ibid., pp. 34-35.*
[52] *Ibid.,* pp. 34-35.
[53] Edward W. Smith, Stanley Krouse, Jr., and Mark Athenson, *The Educator's Encyclopedia* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1961), pp. 749-50.
[54] Baker, *op. cit.,* p. 11.
[55] Lambert, *op. cit.,* p. 405.
[56] Stolurow, *op. cit.,* p. 144.
[57] Green, *op. cit.,* p. 135.
[58] Baker, *op. cit.,* p. 10.
[59] Green, *op. cit.,* p. 129.
[60] Goldsmith, *op. cit.,* p. 29.
[61] Mager, *op. cit.,* p. 11.
[62] Schramm, *op. cit.,* pp. 11-12.
[63] *Ibid.,* p. 13.
[64] Mager, *op. cit.,* p. 18.

programmed texts are the forerunners of more elaborate and effective programs, which will be developed on a firm foundation of research and experience. For example, Schramm states that " 'Skinnerian' programs are probably only weak foreshadows of programs that can be made in the future."[65]

The future development of programmed instruction is intrinsically associated with that of the program. "Whatever theories we may or may not support there is little doubt that automated methods as they exist today will stand or fall on the efficiency of their programmes."[66] Schramm indicates that it is unfortunate that in this country commercial activity in this area so far has been largely counterproductive to better programs.[67]

Another threat to the future of programmed instruction is involved with the mechanically and electrically operated machinery on the market, much of which is unreliable and uncomfortable. "There is a real danger," warns Baker, "that in the transition from laboratory to operation, automated teaching will be gadgeted unto death."[68]

Waller foresees a very bright future when more resources are available for research and when "The individual learner comes more fully to understand the rewards of self."[69] He goes on to point out that it is "difficult to overstate how decisively important programmed learning supplemented by inexpensive teaching machines" could be in the education of new nations lacking the funds and human resources to carry on traditional educational progress. New and underdeveloped nations are going to depend upon the communist and the free world for technical assistance in education. Programmed instruction may prove an economical breakthrough for the free world. ". . . it is very possible that the computers used for data processing and for information retrieval in our schools will also adapt auto-instructional programs to individual students needs and abilities in the not-too-distant future."[71]

At this time computer-controlled teaching machines are primarily used as research tools in various private and public institutions.

Regarding the possible future development of programmed instruction and its teaching devices, Mager visualizes great sophistication of the simple computer-controlled programs of present research:

> The device learns from the student; it learns what he needs to know and then not only provides him with practice but adjusts the rate of problem presentation to match the proficiency he is demonstrating.
>
> Finally, a device can be built to control many of the outside influences that normally can serve to distract the learner from his task. It is not necessary to limit our thinking to situations in which a learner sits down in front of a device. It is entirely possible for the learner to sit in a device that is adjusted not only for the presentation of the program but also for the salient features of the environment as well—such as noise, temperature, lighting and physical comfort.[72]

As far as predictions for the future developments of programmed instruction, generally each author sets forth his own predictions. Although many lists could be cited,[73] only one set of predictions which is considered fairly comprehensive and reflective of other authors is included:

1. These methods and devices are here to stay.
2. Several things will be done to acquaint teachers with the potentiality of these developments.
3. The comparative study of live and automated teaching will stop.
4. Future research will concern itself with discovering the important characteristics of the materials and methods.
5. These developments will lead to a theory of teaching.
6. Courses will be revised as a result of the new insights provided.
7. Basic changes in our thinking about what a course is will take place.
8. Research will demonstrate the importance of sequence factors.
9. We will see a new form of dynamic individualized programming called ability-pattern programming.
10. The devices of the future will be either books (programmed or scramble) or computer-based machines; small devices will drop out.
11. Learning from auto-instructional programming will be shown to be capable of aiding persons to solve problems creatively.[74]

Summary

Since the Fundamentals Learning Laboratories of North Carolina have been developed around the use of programmed materials, this chapter has been included to provide the reader with a brief history and survey of the types of educational materials included under the general term "programmed instruction."

It has been pointed out that many of the basic philosophies and procedures utilized in present-day programs are not new. Socrates demonstrated the principle of teaching through reducing a subject into small, sequential steps over 2,000 years ago. Quintillian and Comenius both clearly stated principles which are utilized in the best programs today.

Even the concepts of a mechanical device to be used in teaching is not something new although it was not until the twentieth century that the expression *teaching machine* was coined by Sidney L. Pressey. Records indicate that a mechanical device was used to train knights during the middle ages and that mechanical devices for teaching had been filed with the U.S. Patent Office over 100 years before Pressey developed his machine.

Actually, Pressey had originally intended to develop his machine simply to administer and score tests, but he discovered it could also teach. On the other hand, B. F. Skinner built the first machines designed to teach and which are based on his animal learning experiments conducted in a Harvard laboratory.

Programs can be divided into linear, branching and eclectic categories. The principal subdivisions under linear programming are (1) programs which require the student to recall and construct his answer and (2) programs which require the student to recognize the correct answer (multiple-choice). *Branching* programming uses multiple-choice answers with each choice leading along different routes to the same goal. A newer approach to branching is the Sheffield system, which differs from the others because the student is required to recall and construct an answer. The third group of pro-

[65] Schramm, *op. cit.*, p. 18.
[66] Goldsmith, *op. cit.*, p. 32.
[67] Schramm, *op. cit.*, p. 10.
[68] Baker, *op. cit.*, p. 11.
[69] Theodore Waller, "The Future of Programmed Instruction," *Management Bulletin Number 22* (New York: American Management Assoc., Inc., 1962), p. 42.
[70] *Ibid.*, p. 42.
[71] Don D. Bushnell, "Computer Based Teaching Machines," *The Journal of Educational Research*, Vol. 55, No. 9 (June-July, 1962), p. 528.
[72] Mager, *op. cit.*, p. 18.
[73] Additional predictions may be found in Brown (1964), *op. cit.*, pp. 260-61; Schramm, *op. cit.*, pp. 39-40; and Waller, *op. cit.*, p. 41.
[74] Stolurow, *op. cit.*, p. 526.

grams consist of either special-purpose methods or combinations of the first two groups. Indications are that this group will grow, especially since digital computers are beginning to be applied to programmed instruction.

A survey of the literature convinces one that authors have described many more advantages in using programmed instruction than disadvantages. It has been shown that programmed instruction can teach a great variety of people—from mental retardates to gifted graduate students.

Generally, the future prospects for the development of programmed instruction look favorable. However, its development may be nullified should too many poor programs be put on the market or research be abandoned. Should development continue, it would seem that more complex programs will evolve that will increasingly rely upon digital computers.

CHAPTER VI

Hardware and Software

By Donald A. Rieck

A major portion of an Independent Learning Center is devoted to the "hardware" and "software" which are utilized to carry on the learning activities planned for a Center. The term "hardware" is normally used to indicate major equipment and media gear. A projector is a piece of "hardware." The term "software" is used to identify projected materials and printed items which are used on or with "hardware." A 35mm slide used in a projector is an item of software; as is the printed study guide or program that goes with the slide. Both areas of "hardware" and "software" have some common premises which can be utilized in any media organization or learning situation such as the Independent Learning Center.

Basic Premises for ILC Usage

The first and probably most important concept to develop and integrate in the use of hardware and software is that of simplicity. The scope and level of hardware and software selected and used in any Center, should be of the simplest nature, but yet allow the learning function desired to transpire. By this, it is meant that equipment and materials used should be of the lowest sophistication level that will do the instructional job planned by the Center's personnel. If a simple playback tape recorder listening station will allow the learning desired, why purchase a dial-access retrieval system to perform the function. Too often, today's hardware systems are marketed on their many capabilities and flexibilities of function. However, a Center must have a current or future need for those capabilities before the system should be considered. Hardware has been purchased because of "glorious" future plans to use all those capabilities; but because of lack of real need, limited utilization time, lack of trained personnel, high cost of operation, etc., the future never quite appears. It might be kept in mind that it may be easier to add functions to a hardware-software system as the need arises, than to develop or create a use for those extra capabilities you purchased with that sophisticated system. Start with low level, simple to operate hardware and software, and then expand upward in sophistication and outward in quantity as the demands and needs of your Center increases.

In keeping your hardware and software development simple, you should consider the following areas also:

Type of User—The ability level, age, and learning goals of the Center's user can affect the simplicity level of your Center's hardware and software.

Number of Users—The size of the learning group and the services your Center provides will relate to the simplicity concept. Generally the larger one's Center, the more sophistication can be expected.

Format of Use—The type of media software used will control the level of simplicity of your Center's hardware system. Simple media such as slides, cassette tapes, filmstrips, etc. require low-level sophistication hardware. Multi-media, synchronized programming, audio/video packages, etc. will demand more elaborate hardware varieties. Selecting basic simple media materials helps to keep hardware simple.

Where in Use—The location of your Center may influence the simplicity level also. Whether you are a satellite center, a portable/moving center, a store-front center, etc. will affect your sophistication level in hardware and software selection.

The basic premise should be, again *Keep it Simple*—as simple as the various factors listed above and in the next sections will allow.

Listed below are the four basic areas of hardware and software that may be found in an Independent Learning Center. Under each category are listed examples of the types of gear in terms of their sophistication level, lowest to highest.

A. The Learning Station
   1) The study table
   2) Dry carrel
   3) Wet carrels
   4) Listening centers
   5) Carrels with audio/video modules or media gear units

B. The Audio Device
   1) The tape playback deck
   2) The tape recorder
   3) Audio-tutorial unit
   4) Student response system
   5) Dial-retrieval system

C. The Visual Device
   1) The hand-operated viewer
   2) The projector
   3) The projector—sync system
   4) Video display retrieval systems
   5) Computer-controlled display systems

D. The Instructional Media
   1) Print materials
   2) Audio formats—purchased
   3) Visual formats—purchased
   4) Audio-visual formats—purchased
   5) "Local" production formats

A second important concept to develop and utilize in the hardware and software program of your independent learning facility is the idea of materials availability. In selecting a hardware and software system, the two areas must be looked at together. One must be sure not to purchase hardware that has limited software available. There are many items of gear marketed that may have as few as two or three items of software available for its usage.

Another "beware" point is that of hardware which is "made" for local production and programming of software. Again, much of this type of hardware demands extra time and staff to develop and feed software to it. Local production and programming of software is possible only at very simple, non-sophisticated levels. Generally local production and programming of software for hardware systems that have limited material available for purchase requires from 50 to 400 hours of staff time for each usable *hour* of software. Does your Center have this time available? It is best to first consider hardware systems which have quantities of "good" software available for use on them.

Considerations in the area of materials availability thus are:

Software availability for given hardware.
Amount of programming needed.
Is media format a simple standard type?
Ease of "local" production or programming for given hardware.

A third basic concept to be developed in the hardware and software areas of your Center is that of standardization. It is best, if in the selection process of gear and materials, you can key on some specific types of software and brands and models of hardware. That is to limit the variety, but not quality of your Center, and not end up with a wide range of incompatible gear and materials. This must be done so as to allow for:

Ease of learned operation and training.
Simplicity of maintenance and repair.
Minimum numbers of media formats.
System of center-wide package purchasing.

More details on this topic of standardization will be discussed later.

Evaluating, Selecting, and Purchasing A-V Equipment

Every Learning Center is interested in spending its money in the way that will enable it to develop the best educational program possible. In developing an outstanding educational program, it is necessary to purchase many types of audio-visual equipment. In order to insure that purchases of audio-visual equipment are made in such a way that they give the maximum contribution to the educational program for the least expenditure of money, it is necessary for an ILC to carefully evaluate each type of A.V. equipment being considered for purchase.

The decision as to what brand or model of A.V. equipment to buy is an important one, though not an easy one to make. Each Center must make this decision for itself, considering its own individual needs.

The level of development and the scope of one's media organization will affect these selection decisions. Small, limited scope Centers will operate in a different realm than full fledged, large operations. The administrative philosophy of your Center will, also, affect the selection and purchasing of media hardware. The attitude of key personnel toward "gear" or capital expenditures will limit or enhance what can be considered for equipment. Instructional values and user's needs should take precedence over personal attitudes, but often both have major relationships to what can be proposed and justified for capital expenditures.

A Center that wished to purchase the best equipment available within the price range they can afford must be able to evaluate the various brands and models offered, and determine which one should be purchased. The main factors which should be considered in evaluating and selecting A.V. equipment are:

1. Standardization

Some Centers have decided to standardize their A.V. equipment so that they have only one model of any particular type of A.V. equipment. There are several advantages to standardization: a) operation is simpler since there is only one model to learn to operate, b) all external maintenance/repair can be done by one authorized maintenance shop, c) fewer parts have to be stocked for internal maintenance, d) one dealer will furnish all the equipment and he will become very familiar with the Center's needs. There are also some *disadvantages* to standardization: a) if purchase is made by specified brand and model, there will be limited competitive bidding and prices will be usually higher, b) when a dealer knows he will get the business, he may not give as much service, c) standardization makes it impossible for a Center to take advantage of all improvements and developments. Each Learning Center must analyze these advantages and disadvantages and decide for itself whether or not to standardize its purchases of A.V. equipment.

2. Availability

Availability of equipment should be considered. Can the dealer make immediate delivery or will there be a delay? If there will be a delay, how many days delay will there be? Each Center must decide how much delay will be acceptable. Another important factor to consider will be the availability of additional items at a later date. Will this particular model continue to be available and if so, will the price remain constant? Some dealers offer a fabulously low price for the first purchase, but when one is ready to purchase additional items, the price skyrockets.

3. Price

Prices for A.V. equipment should be obtained by competive bids or quotations with each interested dealer being notified in advance concerning the taking of bids. If a Center is considering trading old equipment, the request for bids should ask that two bids be submitted, one for the outright purchase of the items under consideration, and the other for the purchase of said items with certain specified items being traded in. The request for bids may also include a statement of the conditions under which this bid price can be applied to later purchases. Many organizations are required to accept the lowest bid submitted, provided that the equipment meets specifications as written, which insure that inferior equipment will not be quoted.

4. Institutional quality

Probably the most important factor to be considered in evaluating A. V. equipment is insuring that the equipment being purchased is of institutional quality. Many manufacturers make two lines of equipment: home quality equipment and institutional (school) quality

equipment. Each line is made to hold up under the conditions under which it will usually be used. Institutional quality equipment is constructed in a much more rugged manner than home quality equipment. School quality equipment must be able to stand up under continual use, under use by many persons, and under frequent moves from room to room. School quality equipment will cost more than home quality equipment, but the longer life and greater dependability make the purchase of school quality equipment a wise investment.

5. Dependability

Each Learning Center wants to purchase dependable equipment, and they probably will if the equipment is carefully evaluated prior to making a selection for purchase. We say probably since if it is not possible for each Center to completely test and analyze the performance of each item submitted, the Center must, to a great extent, *rely* on the dependability of the manufacturer, the distributor, the dealer, and the salesman. A Center should cease to do business with any one of these who has misrepresented his product.

6. Ease of Use

The very best A. V. equipment available is of no value if teachers will not use it. For this reason, it is advisable to purchase only equipment that is easy to use. Ease of use will include several factors, such as simplicity of operation, portability, similarity to other equipment already on hand, etc. Many features which insure ease of operation are simple and inexpensive and, therefore, can be required by all Centers making purchases. Some features, such as automatic threading for 16mm projectors are relatively expensive; and, therefore, require individual consideration. The actual cost of such features can be determined by requiring each bidder to submit two bids, one with the feature and one without it. It is possible for a piece of A. V. equipment to be equipped with so many special purpose features that it actually becomes more difficult to operate. Equipment evaluators should see that the equipment is free from unnecessary gadgets.

7. Maintenance

A. V. equipment is of little value if it cannot be maintained in efficient operating condition. There are many items concerning maintenance that an equipment evaluator should consider. Some of these items are: a) ease of focal repairs (replacement of lamps, belts, needles, cartridges, etc.) b) accessibility of amplifier, motor, etc., c) ease of disassembly, d) availability of parts, e) extent of specialized parts and supplies available only from the manufacturer and/or his dealer, f) extent of imported parts, g) warranty service available, h) out-of-warranty service available, i) service instruction available, j) circuit diagrams, maintenance manuals, etc. furnished, k) lubrication required.

Not all of these items are applicable to all areas, but most of them are applicable to the majority of situations. Centers that send out all of their equipment for maintenance should be concerned with ease of maintenance, availability of parts, etc. since these factors will affect the prices they will be charged by service shops.

8. Services Offered

Every dealer who sells audio-visual equipment is expected to furnish some services. It is very advisable to have the desired services specified in advance before bids are submitted. These services can be listed in the district's equipment specifications. Every Center should require that the equipment be delivered, unpacked, set up, tested, and adjusted. If the equipment is a new brand or a new model, it is often desirable to require that the dealer furnish some instruction to the teachers concerning the operation and use of the equipment. If the Center has its own A. V. equipment maintenance service, the dealer should be expected to give some technical instruction to the Center's repair personnel each time a new brand or model is purchased. Many services are available from A. V. dealers; some dealers are anxious to make their services available, other dealers make services available only when they are demanded.

9. Testing Equipment

Before any equipment is purchased, it should be tested by media personnel. Learning Center staff members should test run the equipment and students should test run it in a classroom. Many difficulties which do not show up in an office demonstration will show up in a trial use in a classroom.

All new equipment being considered should be checked by the A. V. equipment maintenance personnel (either district employees or local service companies). The equipment should be disassembled sufficiently for the technicians to evaluate the quality of construction and circuitry and the ease of maintenance.

10. Specifications

It is not the purpose of this chapter to present a set of specifications for the purchase of A. V. equipment. Each Center must develop its own set of specifications so that the equipment it purchases will fit the unique needs of that Learning Center. The larger the Center, the greater the number of items it will purchase and, therefore, the greater the need for detailed specifications.

11. Help From Others

Almost all large learning organizations (and certainly all metropolitan school districts) have developed their own set of specifications to be used in the purchase of A. V. equipment. The audio-visual department in most of these school districts will be glad to assist representatives of other media areas in the development of specifications. Contacts can be made by personal visits, by telephone, or by letter. When a letter is written, specific questions should be asked. A. V. Directors in large districts are generally anxious to be of service wherever they can, to further the services of audio-visual education.

12. Bids

All A. V. equipment should be purchased on written bids submitted according to the legal requirements applying to the individual media organization. Requests for bids are usually sent out by a business office; however, the Learning Center personnel should furnish the business office with a list of all sources of the equipment from which bids are being sought.

13. Purchase

After bids for A. V. equipment have been formally submitted to a business office, they are usually tallied and then turned over to the Learning Center for their recommendations. The Center's Director usually designates the lowest acceptable bid and indicates in writing the reason for the rejection for each lower bid. In most areas, there are certain acceptable reasons for rejecting a low bid. When the recommendations have been made by the ILC Director, the bids are returned to the business office where a purchase order is written. In the case of large bids, the board of directors is usually required to approve the recommendations before a purchase order is written.

14. Summary

In order to insure that purchases of audio-visual equipment are made in such a way that they give the maximum contribution to the educational program for the least expenditure of funds, a Center should develop specifications for the media equipment to be purchased and carefully evaluate each item being considered for purchase. The evaluation made of each item may include such other areas of consideration as:

a) Flexibility
b) Portability
c) Effective design
d) Special features offered
e) Safety features
f) Life expectancy and dependability

Determining When New Media Equipment Should be Purchased

There are two areas of decision-making regarding when new media equipment needs to be purchased for your Independent Learning Center. The two areas are that of (1) replacement of existing equipment, and (2) the addition of more hardware to expand the scope of the Center.

Both decision areas, when operated efficiently, makes it possible for a learner to learn more effectually. How can a Center be sure that its media equipment will be operating efficiently? There are three procedures which will help to insure that A. V. equipment will operate properly: (1) regular preventative maintenance, (2) properly made repairs, and (3) replacement of unreliable equipment. The first discussion here will be concerned with ways to determine when equipment should be purchased to replace old or unreliable equipment.

There are many reasons for purchasing new equipment to replace old media equipment: (1) to insure efficient operation, (2) to insure that materials can be used when they are scheduled, (3) to avoid wasting teacher time and pupil time, (4) to prevent teacher frustration, (5) to obtain new features such as quietness, ease of operations, etc., (6) to give teachers a greater feeling of prestige.

Every ILC Director would like to have a crystal ball which could be used to foresee the day that each piece of equipment will cease to operate efficiently and thereby be able to replace each item the day before it was to quit operating efficiently. Although no crystal balls are available, it is possible to forecast, with some degree of accuracy, the time at which certain items should be withdrawn from regular use.

The table given below is being used by one large media organization as a guideline for the replacement of average equipment.

Item	*Probable replacement age in years*
16mm projectors	12 years
Filmstrip projectors	15 years
Filmstrip previewers	20 years
Slide projectors	15 years
Overhead projectors	20 years
Opaque projectors	20 years
Record players	8 years
Tape recorders	8 years
Amplifiers	15 years
Microphones	10 years
Radios	15 years
Television receivers	8 years
Projection tables	20 years
Portable screens	5 years
Wall screens	10 years

This table does not give the life expectancy of any particular piece of equipment; rather, it gives the average life expectancy for various types of media equipment.

The life expectancy of a piece of equipment is dependent upon many variable factors such as the following: 1) inherent differences in individual items as they leave the factory, 2) the regularity of preventative maintenance, 3) the quality of repair work performed, 4) the care given the equipment by the operators, 5) the regularity of use, and 6) the amount of movement from room to room. With all these variables it is easy to see that there is no magical date on which a particular piece of equipment will become ready for replacement. The ILC Director, or other person whose task it is to decide when equipment is to be withdrawn and replaced, should analyze each piece of equipment individually.

Whenever a piece of equipment is in need of major repairs, it should be analyzed to determine which is more feasible—to repair the equipment or to replace it. The person who is charged with making this decision should consider the record of repairs on this particular piece of equipment, the technician's report, the teacher's reports (if any), and the coordinator's reports (if any). A repair record which shows that one item has been in for repairs many times in one year could indicate any of four things: 1) the equipment has reached the age and condition at which replacement should be considered, 2) this particular item had a run of bad luck—the breakdowns were not interrelated and there is no reason to believe that they will continue, 3) the repairs were not efficiently made, or 4) the equipment is being run by inefficient operators. Again each piece of equipment must be considered individually.

The decision as to how long to continue to repair old equipment before replacing it is a difficult one. Some factors which may well be considered in making this decision would be: 1) Are minor repairs done internally or externally? 2) Are major repairs done internally or externally? and 3) Are designated funds available for the purchase of replacement equipment? Externally made minor repairs can, if performed frequently, cost more than the value of the equipment, especially if we consider present value rather than replacement cost. An externally done major overhaul on an old piece of A. V. equipment may actually cost more than the piece of equipment will be worth after the repairs are made. If repairs are done internally, a

major overhaul of this type can often be put aside and done during slack periods. When the budget contains funds set aside for the purchase of replacement media equipment, the decision to purchase particular replacement items is fairly simple—which equipment is in greatest need of replacement. When no funds are designated for replacement equipment, the decision becomes more difficult; should the funds be used for replacement equipment, for materials, for production supplies, etc.

When the decision has been made to purchase additional media equipment, the next question is: When should the purchase be made? Should each item be purchased as it is needed? This would insure a continuous program, but it might result in higher purchase prices. The Center can probably obtain the best prices by making one annual bid. Purchase under an annual bid would mean either that the Center would make advance purchases of equipment which might sit for several months without use, or that it would have to wait several months after the need did arise before the new equipment would be available. Neither extreme is really desirable; the preferred method would probably be somewhere in the middle, with some equipment purchased in advance and some needs remaining unmet until the next annual bid.

There are times when the most advantageous purchasing system would be to buy special offers whenever possible. Many manufacturers or dealers have special offers for the purchase of certain equipment at a reduced price or with related materials or other related equipment being furnished free with each purchase.

There is no way that one can develop a simple, logical, and foolproof method of deciding when A.V. equipment should be withdrawn and replaced. There are too many variable factors to be considered. A person who is charged with the responsibility of making this decision must study the variables, and analyze each piece of equipment individually, and then, using his best judgment, make the final decision.

The second area in which Learning Center personnel must make equipment decisions is when expanding the scope of the Center's services. When the Center grows or expands into a new service area, new hardware is often required. A question always asked first, is when to add this additional gear. Do you purchase the hardware and then build the usage, or do you develop a real demand and then purchase to satisfy the learning need?

For the best operation of a Center and its learning program, one should have a "crystal ball" to read one's future hardware needs. In other words, if possible, one should anticipate future needs and purchase the hardware early enough in the development of a new service to make the service "go." If you wait for that "real demand" or demonstrated lack of hardware to surface, by the time you select and purchase your hardware, the learning need or moment will have vanished.

Selection and purchase of expansion hardware must be based on: (1) felt or anticipated needs, (2) percentage of budget allowed for growth, and then on (3) demonstrated needs. The first decision area of equipment purchasing—that of replacement—can be reversed, however. The needs in the area can be justified and demonstrated on the basis of (1) record of "hardware" usage, (2) repair and maintenance history, and (3) gear age and the other visible items discussed earlier.

Hardware Sources

A unique feature of media hardware purchasing is the lack of an evaluating agency to assist one in the selection of the type and quality of gear desired. Rather, the techniques and procedures discussed in the previous selections must be utilized when deciding on hardware additions to your Learning Center. However, there are several sources which list and describe what hardware is available in the various media categories, and these can be of much assistance when beginning selection procedures.

Some sources to consult are:

Audiovisual Equipment Directory
Issued yearly ($8.50)
National Audiovisual Association, Inc.
3150 Spring Street
Fairfax, Virginia 22030

Audiovisual Market Place
Directory of equipment manufacturers, software producers and distributors, professional and trade associations, film festivals and conferences, and reference books
Edited by Olga S. Weber
2nd ed. 1970 177 pp. ($12.25)
R. R. Bowker Company
180 Avenue of the Americas
New York, New York 10036

Educators Purchasing Master
2 vol. directory on instructional equipment and materials ($10.50 each)
Fisher Publishing
3 West Princeton Ave.
Englewood, Colorado 80110

Educational Product Report
Subscription information exchange cooperative which evaluated learning materials, equipment, and systems, ($35.00 per year—9 issues per year)
The EPIE Institute
386 Park Ave. South
New York, New York 10016

Tape Recorder Annual
Annual publication by the Editors of Stereo Review. Price—$1.50. Complete listings of recorders and accessories with consumer test results.

Photography Directory and Buying Guide
Annual publication compiled by the editors of Popular Photography. Cost—$1.50. Complete Guide for the purchase of cameras, etc. (and there are many)

Evaluating and Selecting Software

No one method or formula has been devised for evaluating and selecting teaching materials because the needs of each Center are different. Criteria for evaluation and selection of materials in a large metropolitan school district must differ widely from that used in a small school system, or in a cooperative unit. Each learning organization should select materials to meet the needs of the local situation and to serve the curriculum. However, regardless of the size or type of school, a material should be selected because it will improve learning, and because it meets the needs of the learner.

Who Should Be Involved in the Evaluation and Selection of Materials?

The audio-visual leader, or the instructional materials specialist should take the lead in planning an evaluation program. It is his responsibility to stimulate interest and to solicit the cooperation of the others in the selection of

teaching materials. As evaluation and selection of teaching materials is a cooperative process, the committee should include supervisors of subject areas, center directors, teachers, students, and producers.

What Are the Duties of the Evaluation and Selection Committees?

A. To appraise new materials
   1. For the Independent Learning Center
      a. Designate areas that need additional material
      b. Preview and evaluate materials for these areas
      c. Select items to be recommended for purchase in each area
   2. For the individual subject areas
      a. Evaluate 8mm films, filmstrips, slides, transparencies, recordings, flat pictures, and other inexpensive types of materials
      b. Select from the items evaluated, a list of materials recommended for purchase

B. To review existing materials in the Center, recommending:
   1. The purchase of duplicate copies
   2. The purchase of revised editions
   3. The renewal of expired leases and loans
   4. The replacement of damaged items
   5. The withdrawal of outdated materials

What Criteria Should Be Established for Evaluation and Selection of Materials?

Each Learning Center should select and evaluate materials on the basis of criteria that is appropriate to its own situation. The criteria suggested here may be useful in developing a set of local standards.

Dale says in evaluating audio-visual materials, ask yourself:

Do the materials give a true picture of the ideas they present?
Do they contribute meaningful content to the topic under study?
Is the material appropriate for the age, intelligence, and experience of the learners?
Is the physical condition of the materials satisfactory?
Is there a teacher's guide available to provide help in effective use of the materials?
Do they make students better thinkers, critical-minded?
Do they tend to improve human relations?
Is the material worth the time, expense, and effort involved?

Schuller suggests this criteria:

Does it contribute to a recognized educational goal of the intended users?
Is it authentic and accurate?
Is it a suitable length?
Is it appropriate to the experience background of the intended users?
Is it likely to motivate desirable attitudes and activities?
Is the photography and sound of good quality?

In the one media organization, evaluation and selection committees composed of classroom teachers, are selected by grade or subject area instructors. The committee may evaluate materials as a group, but most committees prefer to have the materials sent for classroom evaluation. Committee members are urged to enlist other teachers in the Center to assist in the evaluation. When all materials in a given area have been previewed, the committee meets with the Director to discuss and to select the materials that will be recommended for purchase. Budget permitting, all recommended materials will be purchased. The budget allocation for an area is determined by the number of students to be served by the amount of material available in that area.

In another Center, all audio-visual materials are evaluated by curriculum supervisors before a recommendation of purchase is made. Each supervisor, or group of supervisors in a given curriculum area or subject, uses criteria developed by and for each group. Materials are evaluated by the supervisors plus any teacher they may involve. The supervisor then recommends that a given material be purchased, or not purchased, designates the subject and grade levels for its intended use, and indicates the extent of use that can be anticipated. The audio-visual personnel checks the materials recommended for purchase as to technical quality owned.

An evaluation record of the materials being appraised is of benefit to the individual members of the committee, and will be of value to the Learning Center in compiling a permanent record of materials evaluated. The evaluation form should be based upon the criteria established by each learning system or cooperative unit. It should be a simple form consisting primarily of checklists combined with a few written statements.

Example forms:

AUDIO VISUAL TEACHING MATERIALS EVALUATION FORM

Type: ( ) 16mm sound ( )b/w
( )16mm silent ( )color
( )35mm filmstrips--Length
( )Other

Evaluated by_____

Date evaluated_____

TITLE_____

PRODUCER_____ PURCHASE PRICE_____

RENTAL SOURCE_____ RENTAL PRICE_____

1. CORRELATION WITH CURRICULUM _____ Good _____ Fair _____ Poor

2. AUTHENTICITY AND ACCURACY _____ Accurate _____ Generally True _____ Misleading

3. ORGANIZATION
(Does it tell the story simply and effectively?) _____ Well Organized _____ Fair _____ Poorly Organized

4. IS IT IMPORTANT
(Does it make a significant contribution to learning?) _____ Very Important _____ Some _____ Not Important

5. DOES IT EFFECTIVELY DEVELOP CONCEPTS THAT ARE DIFFICULT TO GET ACROSS IN OTHER WAYS? _____ Very Effective _____ Uncertain _____ Other Methods Better

6. ARE THE PICTURES GOOD, CLEAR EFFECTIVE? _____ Good _____ Fair _____ Poor

7. IS THE SOUND GOOD? _____ Good _____ Fair _____ Poor

8. IN WHAT SUBJECT AREAS WOULD YOU RECOMMEND USE OF THIS MATERIAL?_____

9. CHECK THE APPROPRIATE GRADE LEVELS FOR WHICH MATERIAL IS ADAPTED. DOUBLE CHECK FOR MOST APPROPRIATE GRADE LEVEL:

Primary___ Elementary___ Junior High___ Senior High___ College___ Adult___

10. CHECK PURCHASE RECOMMENDATION: Basic___ Supplementary___ Disapproved___

11. COMMENTS:

Media Evaluation Rating _____ Cost: _____

TITLE _____ Source/Producer _____

Film		Recording	Other Materials
____16mm	____Time	____Record	____Transparencies
____8mm	____	____Tape	____Study Prints
____Filmstrip		____Speed	____Cross Media Kits
____Slides	____No. Frames	____Time	

Silent-sound B&W-color_____ Other:_____ ___

Grade level: Subject: Unit:

Brief synopsis and Comments:

_____

_____

_____

_____

_____

(Over)

Evaluation Profile

Directions: Indicate by a dot the approximate value you would give to each category. 10 being the highest rating. Finally connect all dots by a line.

Relevancy to Curriculum	1 2 3 4 5 6 7 8 9 10
Accuracy and authenticity	1 2 3 4 5 6 7 8 9 10
Organization	1 2 3 4 5 6 7 8 9 10
Scope(suitable no. of concepts)	1 2 3 4 5 6 7 8 9 10
Clearly presents concepts	1 2 3 4 5 6 7 8 9 10
Pupil interest	1 2 3 4 5 6 7 8 9 10
Pupil comprehension	1 2 3 4 5 6 7 8 9 10
Technical quality	1 2 3 4 5 6 7 8 9 10

Recommend Purchase:_____yes _____no

_____

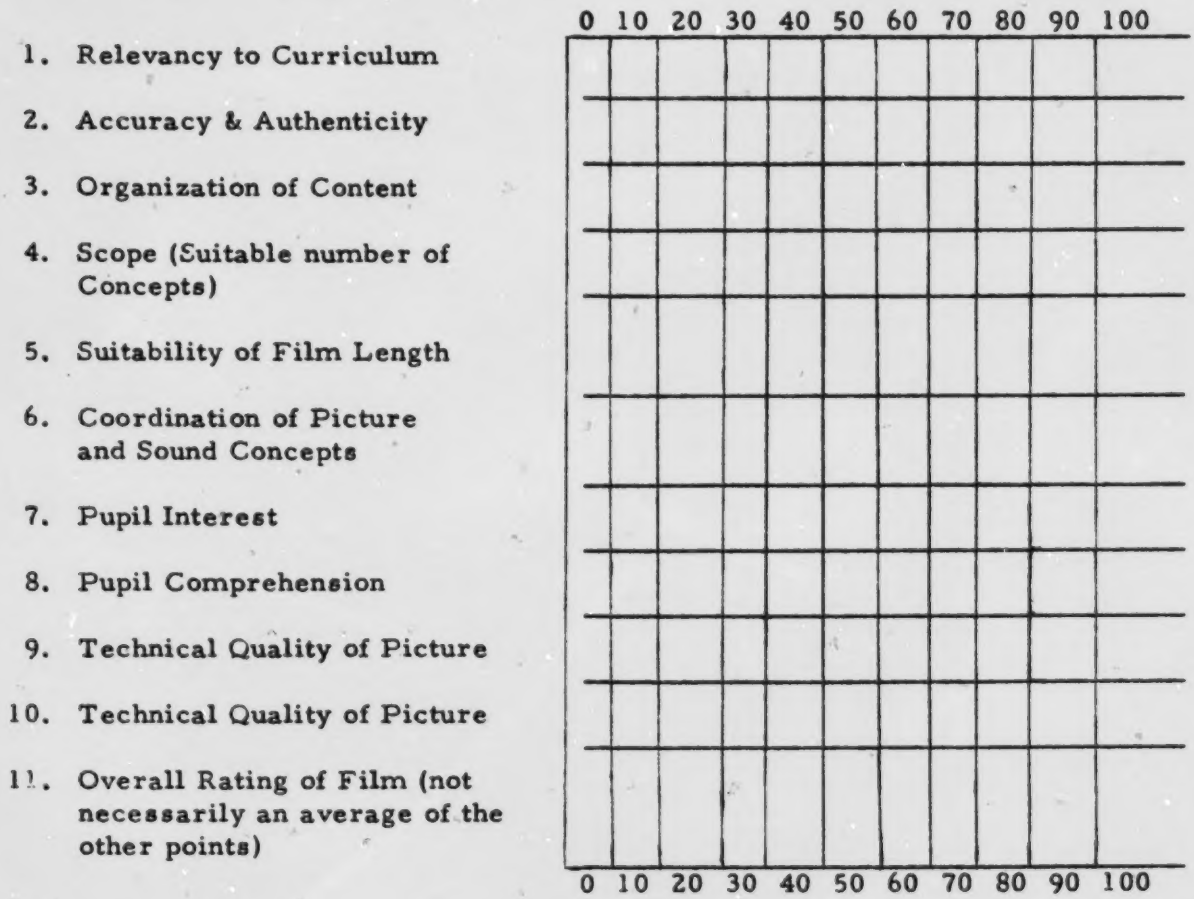
Signatures

SHERMAN MEDIA EVALUATION PROFILE

Title_____

Source_____ Cost_____

Subject Area_____


0 10 20 30 40 50 60 70 80 90 100
1. Relevancy to Curriculum
2. Accuracy & Authenticity
3. Organization of Content
4. Scope (Suitable number of Concepts)
5. Suitability of Film Length
6. Coordination of Picture and Sound Concepts
7. Pupil Interest
8. Pupil Comprehension
9. Technical Quality of Picture
10. Technical Quality of Picture
11. Overall Rating of Film (not necessarily an average of the other points)
0 10 20 30 40 50 60 70 80 90 100

Your Recommendation Purchase Yes____ No____

Comments:

Reviewed by:

DEPARTMENT

Sources of Educational Media Software*

I. Motion Films—8mm and 16mm

A. Local: School systems in major cities

B. State and Regional: Area Schools Instructional Materials Centers, Library & Instructional Materials (Title III ESEA)

C. University (Extension) Libraries

1. University Extension Division
   Audio Visual Center
   University of Iowa, Iowa City, Iowa 52240
2. Department of Audio-Visual Extension, University of Minnesota—2037 University Ave. S.E., Minneapolis, Minnesota 55455
3. Film Rental Library, Wisconsin State University, LaCrosse, Wisconsin 54601
4. Indiana University Audio-Visual Center, Bloomington, Indiana 47401
5. Instructional Media Center, University of Nebraska Lincoln, Nebraska
6. University of California Extension Media Center 2223 Fulton Street, Berkeley, California 94720
7. Visual Aids Service, Division of University Extension Champaign, Illinois 61820

D. Free Loan or Sponsored Libraries:

Associations:

1. Association Films, Inc., 600 Madison Ave., New York, N.Y. 10022
2. Ideal Pictures, Inc., 58 E. South Water Bend, Chicago, Illinois 60601
3. Modern Talking Picture Service, 3 East 54th Street, New York, N.Y. 10022
4. Sterling Movies, Inc., 43 West 61st Street, New York, N.Y. 10023

Industry—Commercial:

1. Bell Telephone Company (request through local company office)
2. Ford Motor Company, The American Road, Dearborn, Michigan
3. Eastman Kodak, 343 State St., Rochester, N.Y. 14650
4. General Electric Educational Films, 600 Washington Ave., Schenectedy, New York
5. General Motors Corp., Public Relations Staff—Film Library General Motors Building, Detroit, Michigan 48202
6. Kaiser Aluminum, 300 Lakeside Dr., Oakland, Calif. 94604
7. Shell Oil Company, 459 North Meridan Street, Indianapolis, Indiana 46204
8. Standard Oil, 30 Rockefeller Plaza, New York, N.Y. 10020
9. Xerox Corporation—AV Services, Midtown Tower—2nd Floor, Rochester, N.Y. 14604

Private Interest:

1. AFL-CIO Film Division, 815 16th St. N.W., Washington, D.C.
2. American Trucking Association, 1424 16 St. N.W., Washington, D.C.
3. Anti-Defamation League B'nai B'rith, 515 Madison Ave., New York, N.Y. 10022 (regional libraries)

E. Commercial Producers:

Purchase: (Major Distributors)

1. Carousel Films, Inc., 1501 Broadway, New York, N.Y. 10036
2. Churchill Films, 662 North Robertson Blvd., Los Angeles, California 90069
3. Coronet Films, 65 E. South Water St., Chicago, Ill. 60601
4. Encyclopaedia Britannica Educational Corp., 425 N. Michigan Ave., Chicago, Ill. 60611
5. Eye Gate House, Inc., 146-01 Archer Ave., Jamica, N.Y. 11435
6. Indiana University, A-V Center, Bloomington, Indiana 47401
7. International Film Bureau, Inc., 332 S. Michigan Ave., Chicago, Illinois 60604
8. Learning Arts, P.O. Box 917, Wichita, Kansas 67201
9. McGraw-Hill Book Company, Text-Film Division, 321 West 41st Street, New York, N.Y. 10036
10. Modern South Pictures, Inc., 1410 Howard St., Omaha, Nebraska 68102
11. National Film Board of Canada, Suite 819, 680 Fifth Ave., New York, N.Y. 10019
12. Scott Education Division (Jam Handy, EML, Tecnifax) Holyoke, Massachusetts 01040
13. Technicolor Corporation, Commercial and Educational Division, 1300 Frawley Drive, Costa Mesa, Calif. 92627
14. Walt Disney Films, 237 N. Northwest Highway, Park Ridge, Illinois 60068

Rental: Same as above and below.

Entertainment:

1. Audio Film Center, 2138 E. 75th St., Chicago, Ill., 60649
2. Brandon Films, Inc., 200 W. 57th St., New York, N.Y. 10019
3. College Film Center, 332 S. Michigan Ave., Chicago, Ill.
4. Contemporary Films, Inc., McGraw Hill, 330 West 42nd St., New York, N.Y. 10036
5. Films, Inc., 1144 Wilmette Ave., Wilmette, Ill. 60091
6. United World Films, Inc., 1445 Park Ave., New York, N.Y. 10029

F. Government:

1. Serina Film Loan Guides: Serina Press, 70 Kennedy St., Alexandria, Virginia 22305
   Guide to Government-Loan
   Guide to Foreign Government-Loan Film
   Guide to Military-Loan Film
   Guide to State-Loan Film
2. U.S. Government Films for Public Education Use—Supt. of Documents, U.S. Govt. Printing Office, Washington, D.C. 20402

G. General:

1. Educational Media Index:
   Published by Educational Media Council, Distributor—McGraw Hill Book Co., 14 volumes of assorted nonprint materials by grade level and subject area classification, 1964 with 1965 supplement.
2. Educator's Guide Series: Educators Progress Service, Inc., Box 97, Randolph, Wisconsin 53956
   Elementary Teachers Guide to Free Curriculum Materials
   Educators Guide to Free Filmstrips
   Educators Guide to Free Tapes, Scripts, & Transcriptions
   Educators Guide to Free Films
3. 8mm Film Directory:
   Compiled and edited by Grace Ann Kone, Educational Film Library Association
4. Learning Directory: 1970-71
   A comprehensive guide to instructional materials in all media. Westinghouse Learning Corporation, 100 Park Ave., New York, N.Y. 10017. 17 volumes, approx. $90.
5. NICEM:
   Data from National Information Center for Educational Media at the University of Southern California, R. R. Bowker Company, 1180 Ave. of the Americas, New York, N.Y. 10036
   Index to 16mm Educational Films
   Index to Overhead Transparencies
   Index to 8mm Motion Cartridges
   Index to 35 mm Educational Filmstrips
6. Professional Periodicals:
   Audio-visual Instruction
   AV Communication Review
   Booklist and Subscription Books Bulletin
   Education Age
   Educational Broadcasting Review
   Educational/Instructional Broadcasting
   Educational Screen and AV Guide
   Educational Technology
   Educational Television
   ETV Newsletter
   Library Journal

*This is not intended to be a complete listing of sources, but rather an example grouping to show breadth of available sources.

Media & Methods
Modern Media Teacher
NSPI Journal
School Library Journal

7. Curriculum Guides: See local educational libraries or curriculum labs
8. Resource Listings: See local educational libraries or curriculum labs

II. Filmstrips:

A. "Educator's Guide to Free Filmstrips." Educators Progress Service, Randolph, Wisconsin. Descriptive accounts of free filmstrips. 1968.

B. "Index to 35mm Educational Filmstrips." National Information Center for Educational Media, University of Southern California, Los Angeles, purchase from McGraw-Hill Book Company, 1968.

C. See also
Producers and distributors catalogs. Watch professional journals.

III. Records (Disc Recordings):

A. *Schwann Catalog*: an index to approximately 35,000 currently available disc recordings from producers and distributors. A monthly, obtainable from record shops or in libraries.

B. American Library Association, 50 East Huron Street, Chicago, Illinois.

C. Bowmar Records, 101515 Burbank Blvd., N. Hollywood, California 91601

D. Caedom Records, Houghton Mifflin Co., 110 Tremont St., Boston, Mass. 02107

E. Educational Record Sales, 157 Chambers St., New York, N.Y. 10007

F. Educational Services, 1730 I Street N.W., Washington, D.C. catalog for the asking.

G. National Council of Teachers of English, 221 W. 68th St., Chicago, Illinois.

H. See Also:
Catalogs of major producers; local libraries

IV. Tape Recordings:

A. *Educator's Guide to Free Tapes, Scripts and Transcriptions*, Educators Progress Service, Randolph, Wisconsin.

B. *Harrison Catalog of Pre-recorded Tapes.*

C. Imperial Instructional Tapes, Kankakee, Illinois 60901.

D. *Iowa Tapes for Teaching*, State University of Iowa, Iowa City, Iowa. Write for catalogs.

E. *National Tape Recording Catalog*, from National Tape Repository, Bureau of Audio-Visual Instruction, Stadium Building, Room 348, Boulder, Colorado.

V. Equipment, Combination, etc.:

A. *The Audio-Visual Equipment Directory* (an annual guide to current models of AV equipment). National Audio-Visual Association, Inc., 1201 Spring St., Fairfax, Virginia. $6.00. Handy reference table in back.

B. Audiovisual Market Place. Directory of equipment manufacturers, software producers and distributors, professional and grade associations, film festivals and conferences, and reference books. Edited by Olga S. Weber, 2nd ed. 1970. 177 pp. $12.25. R. R. Bowker Co., 180 Av. of the Americas, New York, N.Y. 10036.

C. *Photography Directory and Buying Guide.* A newstand annual published by *Popular Photography* magazine.

D. See Also: newstands for handbooks on high fidelity, camera equipment, guides to be found in backs of textbooks on AV materials, etc., professional journals, advertisements.

VI. Free Materials:

A. Aubrey, *Selected Free Materials for the Classroom Teacher*, Feron Publishing, Palo Alto, Calif.

B. Dover Sources of Free Materials for the Classroom Teacher, Feron Publishing, Palo Alto, California.

C. *Educator's Grade Guide to Free and Teaching Aids.* Educators Progress Service, Randolph, Wisconsin 53456.

D. *Educator's Guide and Free Guidance Materials*, Educators Progress Service, Randolph, Wisconsin 53456.

E. *Free and Inexpensive Learning Materials*, Division of Surveys and Field Services, George Peabody College, Nashville, Tenn. 37203.

F. Pope, Thomas J., *Free and Inexpensive Educational Aids*, Dover Publications Inc., 180 Varick St., New York, N.Y. 10014.

G. Schain, Robert L. and Polner, Murray, *Where to Get and How to Use Free and Inexpensive Teaching Aids*, Teachers Practical Press, Inc.

H. "Sources of Free and Inexpensive Teaching Aids," "Sources of Free Pictures." All from Bruce Miller Publications, Box 369, Riviera, California 92502.

I. Wagner and Mork, "Free Learning Materials for Classroom Use," 1967 Extension Service, University of Northern Iowa, Cedar Falls, Iowa 50613.

VII. Transparencies and Transparency Masters:

A. General Aniline and Film Corporation, 140 West 51st Street, New York, N.Y. 10020.

B. Keuffel and Esser Company, 300 Adams Street, Hoboken, New Jersey 07030.

C. Technifax Corporation, 195 Appelton Street, Holyoke, Mass. 01042.

D. Visual Products, 3M Company, 2501 Hudson Road, St. Paul, Minnesota 55119.

VIII. Slides:

A. Denoyer-Geppert Company, 5235 Ravenswood Avenue, Chicago, Illinois.

B. Sayer's Inc., Portland 7, Oregon.

C. Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago, Ill.

IX. Flat Pictures:

A. Instructional Aids, Inc., Owatonna, Minnesota.

B. Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago, Illinois.

C. Walt Disney Films, 237 N. Northwest Highway, Park Ridge, Illinois 60068.

X. Programmed Instruction Texts and Devices:

A. Appleton-Century-Crofts, Division of Meredity Publishing Company. Programming Department, 440 Park Avenue S., New York, N.Y. 10016.

B. Behavioral Research Laboratories, (Ladera Professional Center) Box 577, Palo Alto, California 94302.

C. Coronet Learning Programs, Coronet Instructional Films, Chicago, Illinois.

D. Craig Coroporation, 3410 South La Cienega, Los Angeles, Calif.

E. Encyclopaedia Britannica Press, Inc., 425 North Michigan Ave. Chicago, Ill. 60611.

F. Fry, Edward B., Teaching Machines and Programmed Instruction, (McGraw-Hill Book Company, Inc., New York, N.Y. 1963).

G. General Programmed Teaching, 424 University Ave., Palo Alto, California 94301.

H. Learning Incorporated, 131 East Sixth Ave. at Wells Fargo, Scottsdale, Arizona 85251.

I. Packare Bell, Lawrence and Arnold Drive, Newbury Park, California 91320.

J. Videosonic Systems Division, Hughes Aircraft Co., P.O. Box 3320, Fullerton, Calif. (The Unitutor).

K. Welch Scientific Co., 7300 N. Linder Avenue, Skokie, Ill. 60076.

XI. Educational Games:

A. Commercial Games Publishers:

1. Cadaco-Ellis, Inc., 1458 Merchandise Mart, Chicago, Ill. 60654.

2. Ed-U-Cards, 13-05 44th Ave., Long Island City, New York 11101.
3. The Garrard Press, Champaign, Illinois 61820.
4. Kenworthy Educational Service, Inc., P.O. Box 3031, Buffalo, New York 14205.
5. Parker Brothers, Inc., Salem, Massachusetts 01970.
6. Whitman Publishing Company, 1220 Mound Ave., Racine, Wisconsin 53401.
7. Wm. F. Drueke And Sons, Inc., 601 Third St. N.W., Grand Rapids, Michigan 49504.

B. Games Books:

1. American Association for Health, Physical Education and Recreation, *How We Do It Game Book* (National Education Association, 1202 16th St. N.W., Washington, D.C. 20036, 1964).
2. Educational Service, Inc., Spice, *Suggested Activities to Motivate the Teaching of Language Arts in the Elementary School*, 1960; Probe, *A Handbook for Teachers of Elementary Science*, 1962; Spark, *A Handbook for Teachers of Elementary Social Studies*, 1965 (P.O. Box 112, Benton Harbor, Mich. 49023).
3. Russell, David H. and others, *Listening Aids Through the Grades*, 1959; *Reading Aids Through the Grades*, 1959 (Bureau of Publications, Teachers College, Columbia University, 525 W. 120th St., New York, N.Y. 10036).
4. Spitzer, Herbert F., *Enrichment of Arithmetic: A Handbook for Teachers, Parts 1-8* (One part per grade) (McGraw-Hill Book Company, Inc., 330 West 42nd St., New York, N.Y. 10036, 1964).
5. Wagner, Guy and others, *Strengthening Reading Skills With Instructional Games*, 1960; *Building Listening Skills With Instructional Games*, 1960; *Strengthening Language Skills With Instructional Games*, 1963; *Strengthening Arithmetic Skills With Instructional Aids*, 1964; *Strengthening Social Studies Skills With Instructional Aids*, 1964; *Educational Games and Activities (A Sourcebook for Parents and Teachers)*, 1966; (Teachers Publishing Corporation, Darien, Connecticut 06820).

CHAPTER VII

Recruitment for Independent Learning Centers

By George Maybanks

In presenting some ideas on recruitment as this activity pertains to Learning Centers, one must make a few presuppositions: that a Center is "open door" and thus a student needn't be referred or funded by other agencies, that it is individualized in the sense that a student can begin at any time and spend as much time there as is necessary, and that it is economically feasible for the most disadvantaged student to attend.

Types of Publicity

Most coordinators are familiar with the various modes of publicity. The problem arises in making the most advantageous use of these types in promoting a Learning Center. The following approaches seem to be the ones that work best.

I. Mass Media

Since many prospective students do not or cannot read the newspapers, the electronic media are the most valuable recruitment tools in the initial stages. The opening of a new Learning Center provides an ideal opportunity to obtain much valuable publicity in the form of features or interviews. These will serve to alert students that a Center is either coming or actually here. Public service announcements can also be used in both the initial and ongoing stages of the Center. The coordinator should alert the media through personal contact or by letter.

Press releases will serve to alert a local newspaper of the existence of a Learning Center. Here, especially in the initial stages of the Center, much free publicity can be obtained, usually in the form of a feature story. Ongoing publicity can be obtained through human interest stories arising out of the Center. Periodically during the operation of the Center, perhaps quarterly, small ads should be purchased listing the opportunities that a Center can offer. If this type of advertising can be budgeted, the media will be much more amenable to free publicity, such as press releases, at later dates.

II. Agency Contacts

Once broad coverage has been obtained through mass media, recruitment should begin to zero in on the individual student. This can be done very effectively through area social service agencies including secondary schools, employment services, welfare agencies, churches, community houses, and health centers. Once a Center is in operation, the coordinator will find that about one half of his students come to the Center through referrals from these agencies.

In familiarizing agencies with the Center a number of approaches are helpful. The coordinator should seek an invitation to various agency staff meetings to give an explanation of the Center to agency personnel. At these meetings, or through the agency director, an invitation should be given to the staff to visit the Center either individually or at a community-wide open house.

Once initial contacts have been made with agencies, the coordinator will find it necessary to remind agencies of the Center from time to time. This can be done either through personal visits or a periodic mailing of fliers.

The coordinator should not forget the primary referring agency, the institution with which the Learning Center is affiliated—usually a community college. Many students who enroll in a community college need the auxiliary services that a Learning Center can provide. Thus, both staff and students should be aware of, and familiar with, the operation of the Center. Here again, periodic reminders need to go out from time to time.

III. Business and Industry

Cooperation from the private sector enhances the effectiveness of a Center both in obtaining referrals and in placement services for those students seeking jobs. Businesses should, therefore, be included on mailing lists. The personnel director or manager should be the target of this publicity. In sparsely populated areas, the coordinator may find it possible to visit most businesses. In urban areas, individual contacts may be impossible, but information can be obtained and disseminated through business related organizations such as the Chamber of Commerce.

Since most labor unions are anxious to upgrade the skills of their members, they will serve as a valuable recruitment and publicity tool.

IV. Individualized Recruitment

Since Learning Centers are individualized, recruitment should be as well. There are a number of techniques that can bring information about the Center to the individual student.

A. Indirect Agency Referrals

Many agencies are willing to provide lists of people who are likely candidates for a Center. For example: state employment services may be able to provide lists of those who do not have a high school diploma. Social welfare agencies may send out fliers with welfare payments. Veterans organizations may furnish a list of recently discharged veterans. When lists of names are received, personal contact is always the most ideal way to follow-up, though this is sometimes not possible due to lack of time or personnel.

B. Fliers

The use of fliers need not be limited to agencies and mailings. They can also serve as posters and handouts in locations frequented by prospective students. Such public places as laundromats and restaurants will usually post these fliers. Supermarkets will often insert them in

grocery bags. For some students the motivation to return to school does not come with the first reminder, but only after seeing or hearing, perhaps, two or three reminders.

C. Recruitment by Students

In many ABE Programs students are asked to recruit a replacement for themselves when they leave the program. Although this idea need not be used in a Learning Center, it does point up the value of a satisfied customer as a recruiter. Students should definitely be urged to spread the word and bring in friends whom they know would benefit from these services. A Center will not be in operation long before the coordinator will realize that a good proportion of the students hear about the Center from a friend.

D. Personal Contact

Probably the strongest motivational force in recruitment is personal contact. That is, communication between a representative of the Center and a prospective student. Responsibility for this type of recruitment falls upon every staff member from coordinator to outreach worker to teacher to secretary. It takes many forms, from a friendly greeting on the phone or at the door to a casual conversation over a bottle of beer. This type of recruitment demands, more than any of the others, human and humaneness from the staff. But it is by far the most effective type of individual recruitment.

A Timetable of Recruitment

A special recruitment problem arises when a new Center is begun. All resources must be militated at the appropriate times to attain the best possible recruitment effort. In general, publicity should begin with broad, general coverage and narrow down to the individual, somewhat in the following manner:

I. Prior to actual opening
   A. Printing of fliers and posters
   B. Printing of goals and objectives for handout
   C. News releases to media
   D. Personal visits to cooperating agencies
   E. Publicity on open house

II. After opening
   A. Posting, mailing, and delivery of fliers
   B. Radio and TV interviews and spot announcements
   C. Paid ads and feature stories in newspapers
   D. Tours for representatives of agencies and business
   E. Talks to interested groups of prospective students
   F. Continued periodic mailings and human interest stories
   G. Follow-up on individual referrals

Conclusion

The best recruitment tool of all is a quality program.

CHAPTER VIII

The Guidance Service as It Relates to Individualized Learning Centers

By William M. Tanner

The guidance function plays an important role in any educational setting but in an Individualized Learning Center (ILC) this service cannot be over emphasized in its importance to the success of the student. In a learning environment that is relatively unstructured, where the student sets his own schedule, where he works independently or in small groups, and where the motivation and maturity required is much higher than for more traditional teaching methods, it is paramount that the student's educational, occupational, and personal needs be met. An organized effective guidance program in the ILC can be the prime factor between success and failure in meeting these needs.

Guidance Defined

There are, of course, many definitions for the term "guidance" but a particularly useful definition seems to be:

> "Guidance is a variety of services which have the common objective of helping students become increasingly self-guided in the maximum utilization of their talents and opportunities."

This "variety" of services as it relates to an Independent Learning Center would most generally include: intake and orientation, educational and vocational guidance, counseling, referral placement and follow-up. Depending on the nature and the scope of the Learning Center and the make-up of the students served, these services will vary in their practical application.

Staffing for Guidance Services

Is guidance a highly skilled and technical process which can only be undertaken by a certified master's degree level counselor? Hardly. Guidance is not a mystical process that takes place only in the "Counseling Center." At one time or another the entire ILC staff, teachers, administrators, will become involved in the guidance process. Ideally, of course, a person with a preparation in the field of guidance would be valuable in the organization and administration of a program but realistically speaking, most Centers will not have such a person available. It is important, then, that the *entire* staff be selected and trained with the thought in mind that they will all be involved in assisting with the guidance service.

Staff members should relate well to other people and should be warm, open and accepting of the student's individual differences. If they have these basic qualities, then in-service training in the principles of guidance should produce a highly effective guidance unit.

Application of Guidance Services

As mentioned, most Individualized Learning Centers will provide the following services in one form or another; intake and orientation, educational and vocational guidance, counseling, referral placement, and follow-up.

Intake and Orientation

The intake interview is a particularly important one for both the student and the staff. From the student's point of view, first impressions are being formed about the Center—impressions that will be difficult to overcome if they are negative. Did he feel welcome? Did the intake interviewer seem warm and receptive? Was anybody listening when the student spoke?

From the staff point of view, much useful information can be gained that affect the student's relationship with the Center. The amount and type of information that is needed concerning the student will vary according to the Center Program but basic knowledge concerning the student's educational, occupational and personal background would most generally be in order. How much formal education does he have? How long has he been out of school? What type of work has he done? Is he working now? Does he have a family? Is he involved with any social service agencies such as Vocational Rehabilitation, the Mental Health Center, etc? This type of information could prove valuable to the Center staff in program planning and in other aspects of aiding the student's progress.

Orientation is designed to help the student to become familiar with the overall Center operation. It could involve such things as an introduction to the teaching, administrative, and secretarial staff, a tour of the physical plant, and an explanation of the general curriculum and procedures for governing student conduct. Any brochures or other handouts that could be provided for future reference to commonly asked questions would seem to fill a need here.

It should also be recognized that the orientation process should not end after the student's first day in the Center. The student should be continuously made aware of changes in policies, curriculum and operation.

Educational and Vocational Guidance

Wise decisions concerning educational and vocational programs are best made when the decision-maker has:

1. Analyzed himself in terms of ability, interest and goals.
2. Studied career information, programs and alternatives.
3. Made a joint and cooperative comparison of these two sets of information.

It is to *assisting* the decision-maker in self-actualization that this aspect of the guidance process directs itself.

Self Analysis

Individual self analysis can be facilitated by a variety of methods. A skillful fact-finding interview can provide much information. Work sampling and career exploration materials of a "hands on" nature are an excellent tool but may be limited by availability of space, staff and finances.

Various types of test devices are available that help the student to measure his abilities, interests and aptitudes. When considering a testing program, however, the following considerations should be kept in mind:

1. Tests should not be introduced to the Learning Center guidance program until their proper use is assured. They are not the first step in analysis of the individual.
2. Test administration and interpretation requires specialized formal training and should not be undertaken by an untrained staff member.
3. Test results are not of much use unless considered in the light of other educational, occupational, and personal data.

Any techniques used seem to produce much more effective results if the student feels that he is discovering himself as opposed to being told about himself by a guidance person.

Career Information

Career information consists of providing the student with useful, up-to-date materials regarding the world of work so he can make reference to them in his decision-making processes. This material should be a much used part of the Center program and should be easily accessible to both students and staff for easy guidance reference.

Career information consists of occupational information, educational information and social information. Occupational information would primarily be concerned with an exploration of a specific occupational area. Reference is made to duties, prerequisites for entrance, working conditions, rewards, advancement, demand for the occupation and referral sources for more information regarding educational and training programs for that occupation.

Educational information would involve all types of materials regarding educational offerings. Purpose of the program, requirements for admission and retention, fees, facilities, staff and other special features would normally be available in this area. Social information refers to materials geared toward helping the individual learn more about the human and psychological environment and how it would relate to himself and his co-workers.

A tremendous amount of career information materials are available. Much of this material is free or is available for a nominal charge. There are also subscription services that will provide catalogued sets of materials along with periodic updating services. The latter approach is rather costly but good if the budget permits.

Some basic resource items are essential for immediate use. These might include the *Occupational Outlook Handbook* and a set of the *Dictionary of Occupational Titles* (D.O.T.), available from the U.S. Department of Labor. Other materials can be ordered as time and funds permit. Sources of materials include state and federal agencies, professional organizations and societies, private industries and trade associations. Educational materials are usually free from each institution. Emphasis should be placed on first obtaining materials concerning local occupational and educational opportunities and those materials requested by students. When gathered, the materials should be evaluated as to appropriateness and utility and then catalogued. Again, the career information materials should be placed in an easily accessible spot in the Center. Students and Center staff alike should be encouraged to make use of them.

Joint and Cooperative Comparison

After the self analysis process and a study of various forms of career information, a joint and cooperative comparison of these two sets of knowledge can help the student make the *best* decision based on where he is functioning at the present time. It is here that the guidance person helps the student to put his goals, strengths and weaknesses into perspective with his occupational possibilities. It should not be an advice-giving process but rather a situation where the student decides with help from someone else, to see himself in a clear perspective. Grades, test scores, past training and experiences—all are discussed in terms of what they mean to the student's future. After tentative decisions are made the staff can help the student utilize the Center program to his maximum benefit and also to help make plans for his continued success after he has completed the Center program.

Choosing an occupation is not an event, it is a process. But somewhere along the line decisions are made regarding what courses to take and what program to pursue. These decisions are, of course, not necessarily final and courses and programs may be changed several times before the student is finally settled into a program that meets his current needs.

Counseling

The two terms "counseling" and "guidance" are not synonymous. In fact, a good counseling service cannot function well without the presence of other guidance services. For example, counseling of some students would be nearly impossible without the career information service. Counseling is a unique and important part of the guidance program.

There are many different philosophies and approaches to counseling and it would not be feasible to discuss them here. However, several principles would seem to be basic to counseling in any setting:

1. Respect for the individual and those qualities which make him different from anyone else.
2. Acceptance of the individual's right to make his own decisions.
3. Development of a "helping relationship" where the counselee feels accepted and understood.
4. Development of an atmosphere of empathy for the counselee's needs and nuturing the feeling that someone is listening to and responding to those needs.

In an Individualized Learning Center counseling will hopefully be available to any student, anytime he needs it and preferably from any staff member. The need for counseling on the part of a student may be indicated by a

number of clues including such things as:

1. Declining attendance.
2. Lack of progress.
3. Too much time in the lounge area.
4. Poor performance on evaluations.

There are many factors which could be affecting the student's behavior in a negative manner. It is the task of the guidance staff to help the student identify those factors and to deal with them in the most appropriate manner.

Referral

During the course of a student's contact, it will sometimes become apparent that the Learning Center is not the most appropriate place to meet all of the needs of that individual student. Referral to another agency (based on those needs) then becomes necessary.

In most communities there are a variety of agencies and institutions that could be resources for referral. A listing of social services agencies taken from a phone book can be found in Appendix A. (See page 41) Not all of these resources will be found in all communities. In-service training of the Center staff should include a discussion of referral sources and all staff members should be attuned to the individual's need for referral. It is also helpful to cultivate a contact person at the more frequently used agencies to facilitate the referral process.

Placement

Many students have the need for employment of a full or part-time nature. If possible the ILC staff should try to develop a job placement system. Employers should be contacted and informed that workers are available. It might also be beneficial to designate one of the staff as a "job developer" who would work with community employers in attempting to place job-oriented students.

Follow-Up

An adequate structure for following up on students is imperative. This should include both those students who have completed programs and those who dropped out before completion of a program. Questionnaires mailed to the student, supplemented by letters, phone calls, and if necessary, personal visits, can provide much information that can be used in structuring future programs and in on-going evaluation of existing programs.

For students completing programs several questions need to be answered:

1. Did the program meet the student's needs?
2. If the program at the Center was prerequisite to another program, is the student functioning well in that program?
3. If the Center program was occupationally oriented, is the student working in that occupation, and if so, how is he doing?

For those students not completing programs, follow-up is designed to encourage them to return to the Center. If they don't return, efforts are geared to finding out why.

Follow-up can also be an opportunity for students to make comments about the program in general and to make constructive suggestions for improvement and expansion.

Summary

A well-organized effective guidance service is an important part of an Individualized Learning Center. The very structure of a Center requires the student to be more mature, motivated and be functioning in a program geared to meeting his needs.

Services generally associated with a Learning Center would include intake and orientation, educational and vocational guidance, counseling, referral, placement and follow-up.

Intake and orientation is an opportunity for the Center staff to gain much useful information about the student. Also it is at this point that the student is introduced to the operation and programs of the Center.

Educational and vocational guidance consists of self-analysis on the part of the student, exposing him to career information and then assisting the individual in making decisions based on what he has gained from those two processes.

Counseling is a unique and separate service in the guidance function and deals with the development of a warm, accepting, helping relationship with students who have the need.

Referral consists of recognizing the need for services other than those available in the Center and directing the student to the best agency to provide those services.

Job placement service should be encouraged and developed for those students who have unmet employment needs.

Follow-up of all students including those who have completed programs and those who have not can be valuable in evaluation of the Learning Center program and in planning for future programs.

APPENDIX A

Social Service Listings from Yellow Pages

Adoption Agencies
Adult Education Schools
Alchoholism Information & Treatment Centers
Baby Sitters
Birth Certificate Service
Birth Control Information Centers
Bonds—Bail
Clergymen
Clinics—Dental
Clinics—Health & Welfare
Clinics—Medical
Clinics—Osteopathic
Clinics—Podiatry
Clinics—Psychiatric
Communities & Homes—Retirement
Community Recreation Centers
Contact Lenses
Convalescent Homes
Counselors—Educational
Counselors—Family Relations
Counselors—Financial
Counselors—Social Relations
Counselors—Vocational
Credit Card & Other Credit Plans
Credit Consultants
Credit Unions
Day Nurseries
Deaf Organizations
Dentists
Dermatologists
Driving Instruction
Drug Addiction Information & Treatment Centers
Ear Pieces—Hearing Aid
Employment Agencies
Employment Contractors—Temporary Help
Employment Resume Service
Family Planning
Family Recreation Centers
Family Relations Counselors
Financing
Financing Consultants
Government—City
Government—County
Government Offices—Federal
Government Offices—State
Government Offices—United States
Handicapped Children Schools
Health Organizations
Health & Welfare Agencies
Hearing Aids
Hearing Aids—Accessories
Hearing Rehabilitation
High School Training Schools
Home Improvement Loans
Home Improvements
Income Tax Service
Information Bureaus
Insurance
Justice of Peace Courts
Labor Organizations
Labor Relations Consultants
Legal Aid Societies
Lenses—Contact
Libraries—Public
Limbs
Loans
Mental Health Organizations
Missions
Oculists
Ophthalmologists
Physicians & Surgeons—Doctors of Medicine—M.D.
Physicians & Surgeons—Doctors of Medicine—M.D.—Anesthesiologists
Physicians & Surgeons—Doctors of Medicine—M.D.—Ear, Nose & Throat
Physicians & Surgeons—Doctors of Medicine—M.D.—Eye, Ear, Nose, & Throat
Physicians & Surgeons—M.D.—Oculists
Physicians & Surgeons—Doctors of Osteopathy—D.O. Eye
Protection Service
Rehabilitation Services
Relief Organizations
Retirement Communities & Homes
Schools—Adult Education
Schools—For Blind
Schools—Handicapped Children
Schools—High School Training
Schools—Mentally Retarded Children
Schools—Vocational Guidance
Selective Service Boards
Skin Treatments
Social Service & Welfare Organizations
Social Workers
Speech & Hearing Therapy
Tax Return Preparation
Taxicabs
Technical Schools
Trade & Technical School
Unions—Labor
Utilities—Public
Veterans & Military Organizations
Visual Aids, Equipment & Supplies
Visual Education Service
Vocational Guidance
Vocational Schools
Welfare Organizations
Youth Organizations & Centers

Suggested Readings

"Counseling and Interviewing Adult Students," available from National Association for Public Continuing and Adult Education, 1201 Sixteenth Street, N.W., Washington, D.C. 20036. Cost—$1.00

Tyler, L. E. *The Work of the Counselor.* 3rd Edition. Appleton-Century-Croft, Inc., 1969.

Isaacson, Lee E. *Career Information in Counseling and Teaching.* 2nd Edition. Allyn and Bacon, Inc., 1971.

Rogers, Carl R. *Client-Centered Therapy.* Boston: Houghton Mifflin Co., 1951.

Mortenson, Donald B. *Guidance in Today Schools.* New York: Wiley, 1966.

Williamson, E. G. *Vocational Counseling.* New York: McGraw Hill, Inc., 1965.

Downing, L. N. *Guidance and Counseling Services: an Introduction.* New York: McGraw Hill, Inc., 1968.

Shertzer, B. and Stone, S. *Fundamentals of Guidance.* Boston: Houghton Mifflin, Co., 1966.

CHAPTER IX

Administering the ILC as Part of a Total Adult Program

By George Bennett

With the large number of instructional options open to adult educators it is all too easy to fall victim to the educational overskill: traditional lecture methods, audio visual aids, study assignments, demonstrations, group discussions, small group projects, individual assignments, examinations, learning packets, modules, term papers, and a variety of other techniques employed to fill old Carnegie Units or new time-line requirements. If the instructor is skillful at his trade the slow student falls behind immediately, the advanced student dies of boredom, and the average student is the lone survivor.

Professional educators find themselves under fire from parents and the general public because of the high number of dropouts from the slow and advanced groups of students, and these same educators are demeanored by institutions of higher learning because the average student (i.e. the final product of the system) is not "college material."

For those educators who have not accepted this situation as normal and lie awake nights thinking that there must be a better way, there is! Individualized instruction through an Independent Learning Center will prove to be the answer, especially if you have a concerned board of education and a few staff members who are concerned enough to implement something new. I would now like to make a few personal comments to you, the reader, about The Independent Learning Center at Hawkeye Institute of Technology.

FLEXIBLE SCHEDULING

If, like most of us, you are interested in programs that will meet the needs of less than class-size groups and have starting dates and times from 8:00 a.m. to 10:00 p.m. daily for every program and that can serve second shift workers, housewives with small children, and others that have been unable to attend traditional "day or night classes," the Independent Learning Center is the answer.

As a traditional adult administrator, I first came across the Independent Learning Center concept several years ago. The concept was introduced by the Superintendent of Hawkeye Institute of Technology in 1966. The Independent Learning Center at Hawkeye Institute of Technology was started in 1967. This was the first such center in the State of Iowa. I'm more enthusiastic over it today than when the doors first opened. The ILC has so many advantages that I couldn't conceive of ever returning to 100 per cent traditional offerings, and, strangely enough, more and more adult educators seem to agree with the Independent Learning Center concept.

The adult Independent Learning Center should not be a replacement for well organized adult education classes. Some courses such as trigonometry, calculus, and etc. normally have insufficient enrollment to cover their cost of operation. These courses, plus courses such as "slide rule," typing, shorthand, chemistry and government, can more economically be offered to individuals or small groups through the Independent Learning Center.

We found the Independent Learning Center allowed us to respond to immediate need. Prior to 1967, we responded to October telephone inquiries for courses in bookkeeping, welding, typing, etc., by saying, "I'm sorry, but the class has been in operation for two weeks. A new class will be offered in January. Watch for our winter list of class offerings and we will be happy to help you then." To the same inquiry we now cheerfully reply, "Yes, we offer the class in our Independent Learning Center. When would you like to start?"

FINANCING THE ILC

A discussion of the administration of an Independent Learning Center, as a part of the total Adult Education Program, would not be complete without the inclusion of financing.

Generally speaking, ILC courses fall into three administrative classes: high school completion (which includes GED preparation), career and pre-career courses, and general interest courses. From a financial viewpoint the first two areas are the most productive due to the availability of various state and federal aid programs to supplement and sometimes completely finance the program.

I personally believe that Independent Learning Centers should *not* be planned, equipped and created as a finished product. A more sound program will develop if it is allowed to grow from a small beginning. In the case of the HIT Independent Learning Center, the program started with a small, poorly equipped room, $750.00 worth of programmed software and one full-time instructor. As the student enrollment increased the hours of the Center increased, at first from 9:00 a.m. to 2:30 p.m. to 9:00 a.m. to 4:30 p.m. The next step was to add a combination secretary-teachers aide. At that point the program had proven its worth and the hours were increased to 10:00 p.m., two nights per week using part-time staff. Through the years, as the new staff members were added, the initial instructor, now Center Coordinator, introduced them to the philosophy and procedures and added them, not just as instructors, but as part of a well-functioning team with one basic goal—"assist the student in succeeding in the program of his choice."

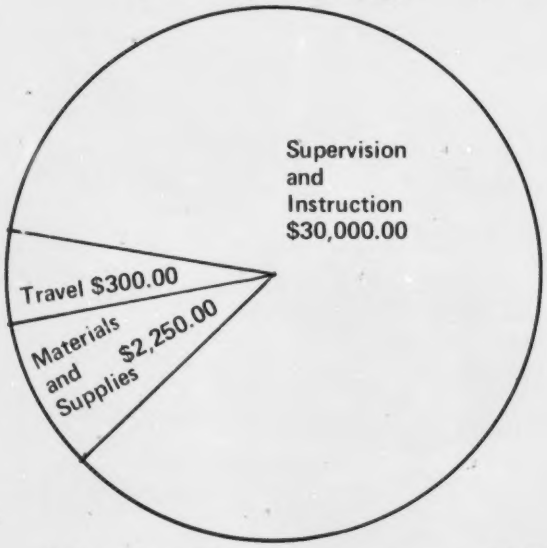
Just as we feel that it is important that the ILC provides a wide variety of course offerings, we feel it is also important that operational funds come from a variety of sources. My next comment may seem rather strange, but *I prefer* that the HIT Independent Learning Center *not* be financed by a single source of funds regardless of how

adequate that source might be. Independent Learning Centers that are funded by a single source, i.e. Special Needs, Adult Basic Education, Work Incentive, etc., have a strong tendency to cater to that group of students and lose the flexibility necessary to serve *all* adults.

The Hawkeye Tech Center combines funding (amounts vary with the number of students served) from the following sources:

1. Tuition from students
2. State aid earned on a per pupil formula
3. Tuition from Veterans in approved courses
4. Adult Basic Education
5. Vocational Rehabilitation
6. Work Incentive Program
7. Manpower Development and Training Act
8. Social Services student tuition
9. Local business and industry paying student tuitions
10. Special Needs
11. Local area school taxes

1972-73 Operating Budget



1. Supervision and Instruction	$30,000.00
2. Travel	300.00
3. Materials and Supplies	2,250.00
Total	$32,550.00

STAFF STRUCTURE

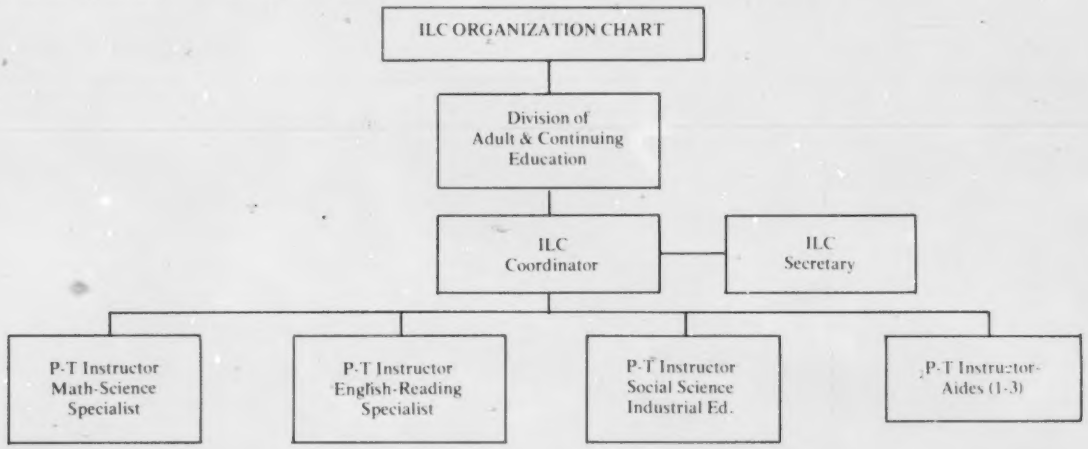
All ILC staff except the coordinator and secretary are part-time employees. Since they are hourly personnel their hours of employment can be varied with the student load. As programs phase in and out of the ILC and student load increases or decreases, the teachers' hours of employment must also be increased or decreased. Instructors are made aware of this arrangement when they are first employed and no major scheduling problems have developed. (The Center has experienced steady growth; therefore, most teaching hours have been increased.)

Part-time staff members are selected on the basis of subject matter, competency and flexibility of working hours available. We find that upper level college students, housewives with teaching certificates, and employees that "moonlight" from local industries during off duty hours, all make excellent instructors. Teaching in an Independent Learning Center does not require as much outside preparation time as standard classroom teaching. While ILC instruction requires little time for preparation, it does require a broader degree of subject matter competency. ILC teachers may be called upon to assist students with problems in math, English, science and dozens of other areas all in the same hour. If the instructor does not know the answer, he or she must be familiar with the programmed material. ILC students lose respect for the instructor who "can't find the answer either."

During Phase I a Center Coordinator was selected on the basis of her interest in the ILC concept and her subject matter competency—English, math, social sciences, etc. The Center entered its second phase when the enrollment became too great for one instructor.

In Phase II, a part-time instructor with a major in mathematics was employed. This enabled the Center to provide more specialized student assistance in math and physical science.

In Phase III an additional part-time instructor was employed and the Center was opened during evening hours. The new part-time instructor was selected on the basis of special skills in reading improvement. At the end of Phase III the Center had the available services of a full-time coordinator, a full-time secretary-aide, a part-time math-science instructor and a part-time reading-English instructor. Through careful scheduling of part-time staff, the Center was able to remain open from 8:00 a.m. to 10:00 p.m. Monday through Thursday and until 5:00 p.m. on Fridays.



QUOTA SYSTEM MANAGEMENT

The Hawkeye Institute of Technology, Division of Adult & Continuing Education, is administered through a quota system developed using "Management by Objectives." The total adult population of Iowa Merged Area VII is used as the basis for developing quotas. The Division goal is to serve 10 per cent of the adult work force with career education courses and 5 per cent of the total adult population with general adult courses. Following on Chart A are listed the vocational and general education goals. The total goal (19,446 adults) is pro-rated to each adult education coordinator, as exemplified on Chart B.

The quota system provides each coordinator with a goal. It then becomes the administrator's responsibility to provide both financial and administrative assistance in reaching the quota goal. The quota system provides the administrator with a valuable tool in budgeting, supervision, evaluation, and long-range planning.

CHART A

I. Vocational Goals

Projected Service Goals: Projection based upon ten percent (10%) of Each Grouping in each County of Service for Vocational Services

COUNTY:	TRADE AND INDUSTRY (Population/Goal)		DISTRIBUTIVE (Pop./Goal)		OFFICE CLERICAL (Pop./Goal)		HEALTH (Pop./Goal)		PROFESSIONAL (Pop./Goal		AGRICULTURE (Pop./Goal)		HOME ECONOMICS (Pop./Goal		SENIOR CITIZENS (Pop./Goal)		TOTAL OF SERVICE	P/CO. %Pop TS
Black Hawk:	26423/	2462	5127/	513	8334/	833	1858/	186	6923/	692	1387/	139	18632/1863		12140/	1214	8082	62%
Bremer:	3891/	389	718/	72	1026/	103	215/	22	1111/	111	1371/	137	3193/	319	2015/	202	1355	11%
Buchanan:	3415/	342	529/	53	688/	69	379/	38	680/	68	1537/	154	2970/	297	1943/	194	1215	9%
Butler:	2468/	247	539/	54	478/	48	132/	13	433/	43	1692/	169	3004/	300	1842/	184	1058	8%
Grundy:	2080/	208	388/	39	549/	55	132/	13	536/	54	1476/	148	2876/	288	1383/	138	943	8%
OTHER:	770/	77	155/	16	218/	22	51/	5	173/	17	415/	42	723/	77	560/	56	312	2%
TOTALS:	39047/	3905	7456/	747	11293/	1130	2767/	277	9856/	985	7878/	789	31448/	3144	19883/	1988	12965	100%
% of TSP		30%		6%		9%		2%		8%		6%		24%		15%		100%

II. Avocational and General Education Service Goals

Projected Service Goals: Projection based upon 5% of Total Service Population for Avocational and General Education Courses.

Total Service Population 129,628 X .05 = 6481.

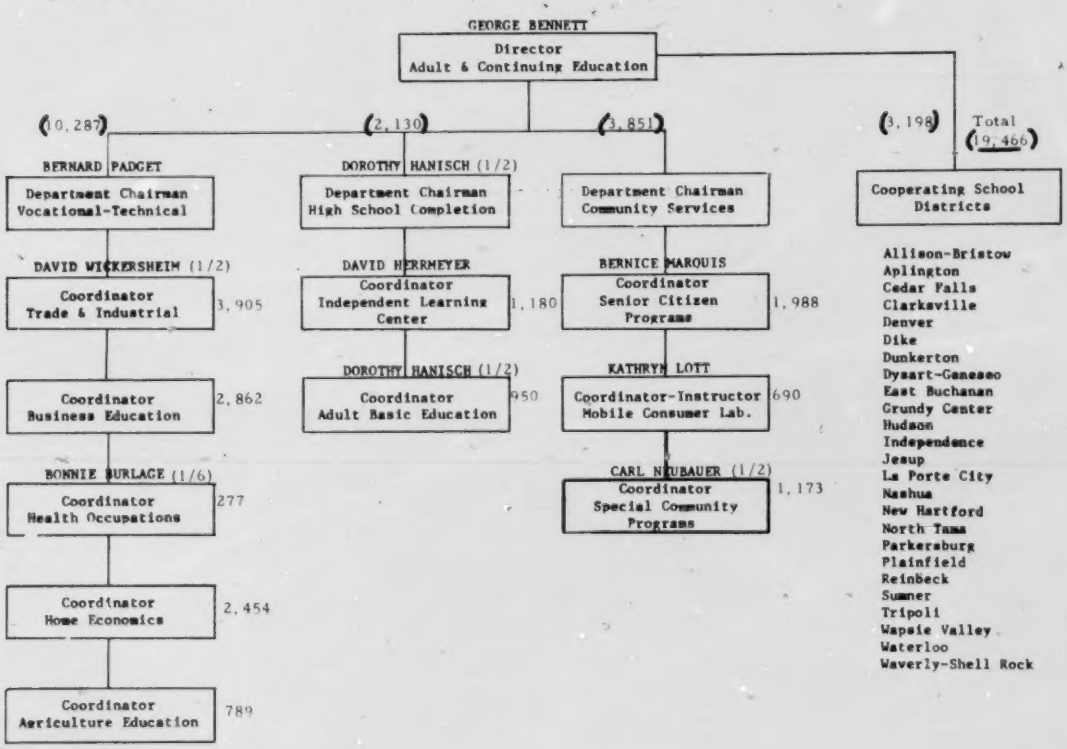
III. Total Projected Service Goals

Vocational Projected Service Goals:	12,965
Avocational and General Education Projected Service Goals:	6,481
TOTAL PROJECTED SERVICE GOALS	19,446

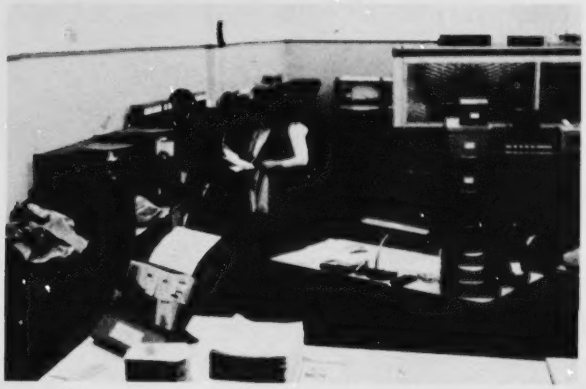
CHART B

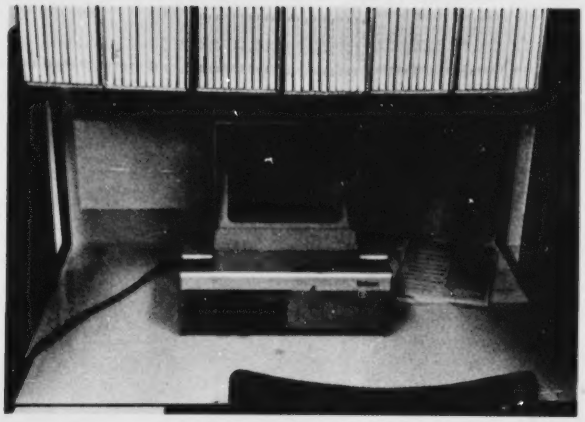
DIVISION OF ADULT & CONTINUING EDUCATION

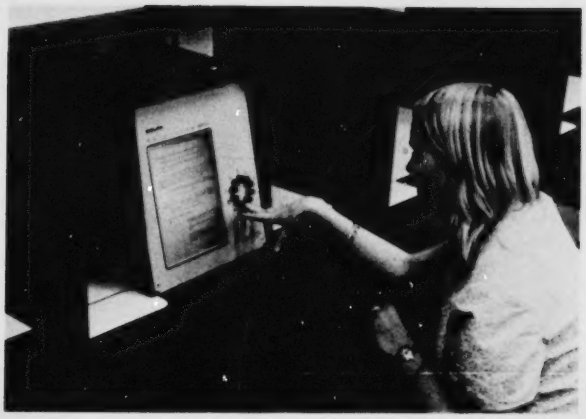
Department Quotas
(Headcount)



50¢







CHAPTER X

The Organization and Implementation of an Independent Learning Center

By Kristin Hibbs

Introduction

Learning Centers in Iowa have now been established in nearly every one of the 15 area community colleges. However, in September, 1970, when I began working on what is now called the Independent Learning and Counseling Center, there was only one other in Iowa. The concept was "borrowed" from North Carolina, just as someone else may now borrow it from Iowa, but each Learning Center through its growth and its efforts to serve the needs of its own resident population, is different. I propose in this chapter to give a basic discussion and explanation of how to organize an Independent Learning Center as I know it.

Basic Definition of an Independent Learning Center

An Independent Learning Center is a flexible learning system which allows each student to learn at his own rate. Individualized instructional materials are used with the teacher serving as a resource person rather than a lecturer. Students study individually on those subjects that are of interest to them.

Learning Centers in Iowa are primarily adult education programs, although a large number of adolescents do take advantage of the programs. The prime determining factor as to the appropriateness of the program is one of motivation. A student (adult or adolescent) must be motivated to learn in this setting. With the flexibility in scheduling each student comes on his own study schedule. Therefore, a student must first want to come before anything can be accomplished academically.

A variety of program offerings are available in Learning Centers. Among those programs operating effectively through Learning Centers are the following: Adult Basic Education (ABE), High School Equivalency Preparation (HEP), high school credit courses, enrichment courses, and counseling services, which range from personal and academic counseling to vocational counseling and career exploration.

Define the Program

The first and most important step in organizing an Independent Learning Center is to clarify what kind of program is desired. Consider in length the following questions: What is to be accomplished in the Independent Learning Center? Who is to be served? What are the needs of the target population? What kind of funding source do you have?

Let us consider the first question. What is to be accomplished in the Independent Learning Center? You may be interested in working with ABE (Adult Basic Education) students, HEP (High School Equivalency Preparation) students, high school diploma students, enrichment, or counseling; or you may want to work with all of the aforementioned areas and/or additional areas. It is very important in establishing the goals and procedures of your Independent Learning Center to consider who it is that you want to serve. Obviously, if the target population is adolescent high school drop-outs, there are different things to consider than if the Center is planned to serve adults who want to take the GED tests. In short, primary consideration must be given to the establishment of specific goals before establishing the Center.

What You Need to Start

Once your goals are well in mind, you will need to consider what things you will need to realize these goals. Fundamental are funding, facility, staff, materials, furniture, and most importantly, students. Let us consider each separately.

Although the problem of funding is fundamental to establishing a Learning Center, the sources of funding are many and vary from state to state. For the sake of expedience, in this chapter we will assume that funds are available for the establishment of your Center.

Absent from the above list of things necessary to start an Independent Learning Center but something which can be elemental to an Independent Learning Center is an advisory committee. While an advisory committee is not essential to establishing a Learning Center, it may be invaluable. Once specific goals and target population are known, persons who already work with the target population should be involved in the planning of a program which proposes to serve them. What better way to learn of the needs and problems of your target population than from those who already serve these people. In the case of this Learning Center, we have invited area high school principals and counselors, social agency representatives (such as Vocational-Rehabilitation, Catholic Social Services, Urban Ministry, Lutheran Home Finding, the WIN program, North Central Alcoholic Research Foundation, and various welfare agencies) and personnel from the community college. Not only will an advisory committee be helpful in the establishment of your Center, but also, once the Center is established, these same people and their collegues can be your referral agencies and sources for locating students. This will be discussed in length later in this chapter. Also, once the Center has been established, this group may continue to meet in an advisory capacity to deal with problems and policy-making decisions in the Center. Needless to say, if you do choose to have an advisory committee, your selection of the committee members is very important as is their role in relationship to the Center. The following ele-

ments of a Learning Center can all be considered by your advisory committee.

The facility or room/s which will house your Independent Learning Center deserves some careful consideration. Much of this consideration will depend upon whether or not you have a choice of facility. Obviously, if you have the funds to rent a building and/or to do remodeling, you may be quite selective. However, if you are assigned a room in a classroom building with no extensive funds for remodeling, you will have to work with what you have. Let us first assume that you have the freedom to pick your own Independent Learning Center setting. In an earlier chapter this topic is considered in length, however, it is important enough that it should again be mentioned here. One of the first considerations as to your facility is location. A great deal of weight in your choice of location should go to the consideration of your target population. Will they be "turned off" if your facility is housed in a school building? If they were high school drop-outs, they might be. What kind of public transportation system does your community have? Will your facility be easily assessable to the people you are aiming to serve? Do you plan to use school resources in your program—would they be available if the facility were miles from the school? All of these questions are concerns you might have in determining the most effective location of your Independent Learning Center.

Also to be considered is the facility itself. You will need a well-lighted, semi-quiet area which is conducive to study. It is preferable to have several smaller rooms along with the main study area. These smaller rooms could serve as student lounge, room for small discussion groups or group counseling, and perhaps one for noisy activities such as typing and office machines instruction. Restroom facilities are also necessary.

In conclusion, it is important to recognize that even if you do not enjoy the luxury of being selective in your facility, if you have no money for remodeling, and if you are assigned an old classroom—just one room, do not give up the idea of having a successful Independent Learning Center. The facility, while of significance, is not the most important factor in the success or failure of a Learning Center.

Another factor important to the establishment of an Independent Learning Center is equipment. First, let us turn our attention to furniture. In the discussion of any phase of an Independent Learning Center, we must constantly be aware of individual differences. Here, too, in selecting student furniture you should realize that while individual carrels are ideal for many students, there are still those who would prefer to be seated at a table with others even though they may all be studying different subjects. A mixture of a majority of individual study carrels with a small number of tables, which seat not more than 4 or 5 each, is recommended.

In addition to student furniture, you will need shelves and furniture to house student records and test materials as well as a desk or table which the instructor may use.

In an earlier chapter audio-visual equipment and the selection of such equipment was discussed in length. At this point I would like to make some brief comments. Here, too, as with the consideration of an elaborate facility, it should be clear that while audio-visual equipment is an excellent addition to a program, it is just that—an addition. It is not essential. It is quite costly and, therefore, is limited to use by those Centers which have the money to spend. If money for this type of equipment is not available, do not give up the idea of establishing a Learning Center. But, if you do have some funds for equipment, some recommendations are in order. Buy simple, easy-to-operate equipment for which you can make your own programs. It may be assumed that the biggest capital outlay is with the equipment itself. This may not be true if your equipment can only be used with expensive prepared programs. The greatest usage is usually derived from those machines whose programs are relatively inexpensive, and have many sources for purchasing. Those machines which allow you the freedom to make your own programs will prove invaluable in working with the individual differences of students. Machinery adds another dimension to individualized instruction; however, much is lost when the machine becomes the only dimension. No machine could or should take the place of one human being helping and understanding another.

Whether your Center will have one teacher or ten, there is nothing more important to the success or failure of your program than the careful selection of your Learning Center staff. An Independent Learning Center teacher—coordinator, instructor, counselor, whatever the title—must be a very special type of teacher. The effect this person will have on your program cannot be stressed too much. It is easy enough to get students to the Center the first time, to get them started on a program, but the difficult part is keeping the student and helping him academically to the degree that he requires. The Independent Learning Center teacher—especially if there is to be only one teacher initially—must be an intelligent person academically and a tolerant and empathic person socially. The academic qualifications are relatively easy to gage, though perhaps not so easy to find. The other quality is more difficult if not impossible to measure. If your program is to help people, your staff must be willing to accept them and try to understand them. There is no room for racial bigotry, sexist attitudes, religious bias, or age prejudice in this or any other educational facility.

Academic qualifications for the Independent Learning Center instructor should include teacher certification through the State Department of Public Instruction. If this person is to be working with high school credit courses, he should be certified on the secondary level. A variety of subject specialties are necessary. Because of the non-traditional role of the Independent Learning Center instructor as resource person in many areas rather than specialized lecturer, the Independent Learning Center instructor must have a broad background in several academic areas. English and mathematics are particularly important areas in which to have teacher strengths. Many students have problems in either or both areas. Reading, social sciences, and natural sciences are also areas in which the instructor should have strength. In other words, the Independent Learning Center instructor must be an academically well-rounded person with the ability to be flexible and extremely versatile.

Another important part of an Independent Learning Center is the materials to be used. These could include text materials, counseling materials, and audio-visual materials. Let us first consider the text materials. Here again, this topic was discussed in length in an earlier chapter. However, as a part of the establishment of an Independent Learning Center, it deserves further discussion here. The majority of text materials used are programmed learning materials.

The programmed format is one in which the learner is given a small bit of information. He is then asked a question concerning this information. He makes a response and may then check his response against the correct response which is given. In this way the student is given immediate feedback. As he continues through the programmed text his responses are reinforced and reviewed. Periodic and systematic checks of progress are made in the form of self-test and/or progress tests. This form of instruction has proven to be very effective.

Also used are learning activity packages, workbooks and in some cases, standard classroom textbooks modified for individual use. Audio-visual materials are often incorporated into courses with these materials.

The type of audio-visual materials used would depend upon the types of equipment in the Center. Cassette tapes, sound filmstrip programs, and sound-slide programs are used to a great extent.

These materials should reflect a broad selection of curriculum areas. Of course, for high school equivalency preparation, the general subject areas of math, English, and reading are necessary. For high school credit courses the curriculum should offer a variety of courses in academic areas that are required for graduation. Enrichment courses such as business courses, other vocational and pre-vocational courses, and general interest courses should also be offered. Obvious limitations on offerings may be set by the materials available and the staffing necessary.

The counseling materials would depend upon the type of counseling done in the Center. Vocational counseling is done in many Centers and materials for this would include vocational information about a wide variety of careers. This information is available in a variety of formats. In this same area, you may want testing materials for aptitude tests, interest surveys, or intelligence testing.

The final element to be discussed in establishing an Independent Learning Center is students. Students are what the Independent Learning Center is all about. The Independent Learning Center student and his needs will vary according to the scope of the proposed program. It is important to point out that there is no "typical" Independent Learning Center student. There are low-income students and relatively high income students, old students and teen-age students, physically handicapped students and emotionally unstable students, alcoholic students and students on drugs, the list could go on and on. The very nature of the program demands that the constant recognition of individual differences be preserved.

In keeping with these individual differences, there are, however, some general areas of similarities in educational goals of individuals. High school completion—in the form of either the high school equivalency certificate or the high school diploma, enrichment in basic skills areas, basic clerical skills training and brush-up, and vocational, academic, and personal counseling are frequently sought-after goals.

Whether your students are adolescent high school drop-outs or strictly adult students, the "How to get them?" is of great importance. As I mentioned at the first of this section, an advisory committee—if you have one—can be very helpful in referring prospective students to your Center. But referral is just one means whereby the people who want/need your program can be reached. This subject will be discussed in depth in the next section.

How to Begin

The first step is getting prospective students to the Independent Learning Center. Beyond the scope of any advisory committee are the many community and area-wide agencies that are in daily contact with people who need to further their education. There are secondary schools in your area who have students and adults coming to them for services which they cannot provide for financial or other reasons. There are under-educated or under-trained adults in your community who do not have associations with any of these agencies but who might like to take advantage of the services your program can provide. Finding these people and informing them of what is available in your program is your initial step. How do you do it?

The first step is to contact in person any and all agency representatives who meet and work with large numbers of people daily. Which agencies are to be visited will depend upon the target population. Let us assume that at least a part of the target population are under-educated, low-income, and perhaps some unemployed. Agencies you might visit would include: the state employment commission, the county welfare department, vocational-rehabilitation, police, probation office, social services. Another contact is personnel managers of large local industries. In large urban areas, where there would be many of these managers, a mailing with enclosed brochures and other informative materials would suffice. Pastors of local churches could also be referral sources. There are many possible sources for referral. In our Center we have received referrals from such people as psychiatrists and lawyers as well as the aforementioned sources.

Once your Center begins operation, your students will be excellent referral sources. Some students, upon completion of their program, will actively recruit for the program.

Another way—though less effective—of informing the public of your program is by publicity. Publicity may take several forms—newspaper ads or articles, radio or television shows, posters distributed throughout the community or area, pamphlets, or carry-home flyers sent home with elementary children. It must be admitted that this form of information has brought many students to the various Centers; however, personal contacts with informed persons, whether they be school people, agency people, or past students, have proven most effective.

In this discussion of recruiting students, a word concerning high-school aged, or younger, students is in order. If you plan to work with the secondary-aged student and hope to have a good working relationship with the secondary schools in your area, it is important to

establish a policy as to eligibility for your program. If your program is set up to compete with the secondary school for students, you, of course, will disregard this caution. However, if you wish to work cooperatively with the schools in guaranteeing that all, regardless of age, have the opportunity for a high school education, you are not a threat. Don't set yourself up as one. Some adolescent students will see your program as an "easy way out." If that's your goal, so be it. If not, you could have a problem. Consider this from the start. Some guidelines for operation in this area may prove helpful.

As information concerning the program reaches the target population, interested persons will come to the Center for further information. The initial interview should only be a giving and getting of information. The prospective student should not be subjected to batteries of diagnostic testing on the first visit. Just getting the student there for the interview is enough. Make the visit as pleasant and as free from pressure as possible.

Many times a prospective student has had only bad experiences with school and has therefore avoided returning to complete his education. If he comes to get information concerning this program, it is important that his attitude of associating only bad feelings with school *not* be reinforced. He should have a positive experience. General goals should be set as to how the student sees himself in the program. In discussing these goals the interviewer should guide the student in seeking realistic goals. Be honest. You may need students, but each student has a right to a clear picture of what he is getting into. If you try to "play down" the fact that a lot of work is involved, the student will probably enroll but will drop out later anyway if he is afraid of work.

The idea is not to discourage a student but to be honest with him. Challenge the student and commend him on his coming in to get started. It wasn't easy, you know. As many a high school drop-out will tell you, going back to school to continue their education was one of the easiest things to put off and one of the most difficult to follow-through on.

Stress the idea of individual differences as this could be a new idea in education to many an adult student. No doubt, he attended school in a traditional classroom and progressed "with the class." Emphasize this student's strengths and talk about his weaknesses. Here, as with all phases of working with adults, treat each adult as an *adult.* Many under-educated adults are particularly watchful of a condescending manner.

Diagnostic testing can be a valuable tool, but don't overdo it when the student first enrolls. Low-level students, particularly, should be asked to write only those tests necessary for their initial activities in the Center. If testing is done, for example, in all three areas of reading, math, and English, it is possible that a student will perform poorly in all three. It is demeaning to many adults to learn—all at once—that they can't add, read, *or* write effectively. It is definitely easier for an adult to accept a weakness in one area. It's not so overwhelming a chore to overcome one weakness. *Then*, after his self-confidence is built up by achieving in one area, he can gradually work into another area.

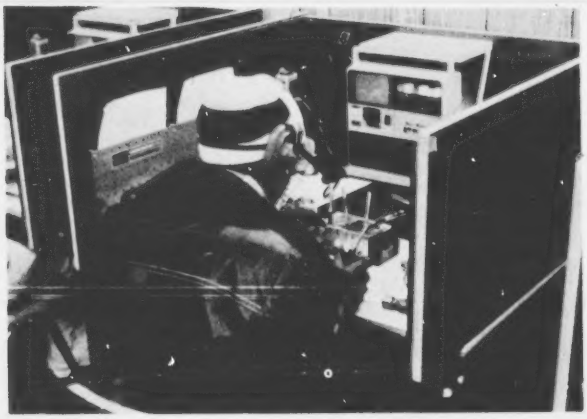
In every program in the Independent Learning Center, progress tests, whether graded or not, should be given periodically. It is important that each student's work be evaluated. Each student is required to pass each progress test with a minimum of 70% accuracy. Scores lower than the minimum indicate that the student has not learned the desired material. He should return to text material, go to another presentation of the same material or perhaps from a text to a filmstrip or worksheet. Individual teacher instruction is usually required at this time also.

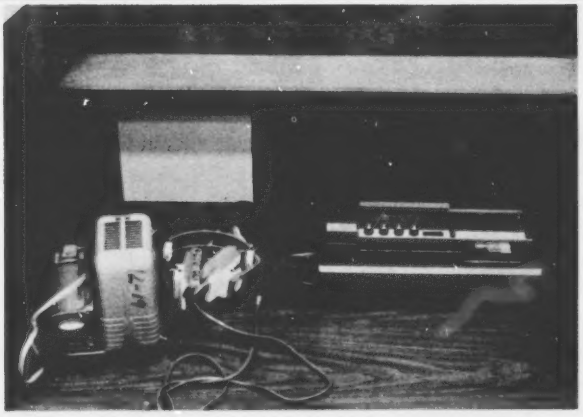
In the discussion of grading progress tests, the question arises as to grading policies. From the onset of the program, such policies should be established and made known to the students and any cooperating secondary schools. If grades are not to be given, rather a "pass-fail" system is to be used, this information should likewise be made known. Many students want a letter grade. Percentage scores, though actually more specific than a letter grade, are usually not as acceptable to students as "A," "B," or "C." Many schools, likewise, desire a letter grade for each course completed.

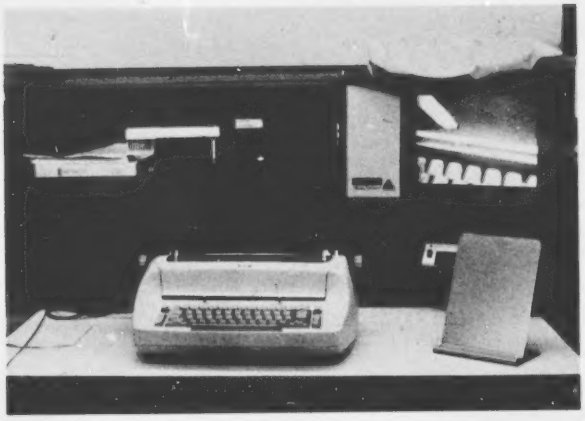
Record keeping should be a concern starting with your first student. What information is necessary will depend upon the program. Students can easily keep a record of their own study hours either by the use of a time clock or time cards, which may serve the function of the time clock but with less expense. Individual student records should include: full name, name on school records, address, phone, former school, highest grade completed, age, and any other information which would be helpful in serving the individual. High school transcripts, military records of educational courses, and/or GED test scores may also be helpful in best serving the student.

After the Center has been in operation for a while, students will begin completing courses. Records of such completions should be kept. If the course is for high school credit an official school transcript should show the course, date, and grade-letter or percentage. The completion of courses, other than the credit courses, should be marked by a certificate or some similar form of recognition.

In conclusion, it must be said that the concept of Independent Learning Centers has proven to be an innovative and effective "venture." The possibilities for programs are almost limitless as are the ways in which an Independent Learning Center can be used to serve people. The concept has proven its validity to those who have worked with the program as well as to those who have completed courses in an Independent Learning Center. The flexibility of the program demands the acceptance of individual differences and is refreshing to student and teacher alike. The cooperating attitude of student and teacher working together toward the same goal is ideal for learning. And, most importantly, in an Independent Learning Center, the responsibility for learning is appropriately placed where it should be—with the student.







CHAPTER XI

The Role of Community Agencies

By Dorothy Hanish

Community agencies perform a vital role in the success of an Independent Learning Center. It is important that the center coordinator establish contact with existing agencies as early as possible, preferably while the ILC is still in the planning stage of development. The center coordinator should inform the agency staff of areas in which their cooperation will prove beneficial to the agency, the ILC and client-student.

While the primary concern of the ILC coordinator may be student recruitment, he or she should not overlook the assistance that can be provided in curriculum development, supporting services such as counseling, financial aid, family assistance and job placement.

The benefits to the community agency making referrals include increased services for clients and provisions for referrals from the ILC program to the agency program.

The following is a comprehensive alphabetical list of agencies, businesses, and organizations that might be serving your community.

ALCOHOLICS ANNONYMOUS
Rehabilitation of alcoholics, referrals for further education, job opportunities after rehabilitation, counseling.

BOARD OF EDUCATION
Casework with problem students; enforce school policies; liaison between schools, courts, homes. (parents)

BOARD OF PAROLE (ADULT), STATE
Directs adult probationers and parolees by law. Uses referral system for further education and job requirements.

COMMUNITY ACTION COUNCIL, COUNTY AGENCY
General administration; supervision, community information and training programs for employment, education and manpower development.

COMMUNITY SERVICES UNIT—
Department of Social Services Institution
Juvenile probation; child placement for Board of Control Institutions, young teen, drop-outs.

COUNCIL ON AGING
To identify the multiple needs of aging people in the geographic area and to meet these needs, either directly or through existing agency programs.

EDUCATIONAL CENTER
Speech therapy, lip-reading instructions, counseling, psychological and hearing tests, other educational referrals.

EMPLOYMENT SERVICE, STATE
Job placement; development and training; aptitude testing and employment counseling.

EXCEPTIONAL PERSONS, INC.
Exceptional Persons' Center providing day care, pre-school and programs for children and adults; transportation; Head Start; Day Care Center, physical-occupational therapy and referrals for handicapped and families.

EXTENSION SERVICES, COUNTY
Consumer information; education in home economics, 4-H; public affairs and all phases of agriculture.

FAMILY MANAGEMENT, INC.
Family financial budget and credit counseling; debt repayment plan. Education.

FAMILY SERVICE LEAGUE
Family casework counseling; marriage counseling; counseling on parent child difficulties. Traveler's Aid Service; Homemaker service and home health aide service with educational referrals.

GOODWILL INDUSTRIES
Sheltered workshop; employment of the handicapped; on-the-job training and education of the handicapped.

AREA VOCATIONAL TECHNICAL COLLEGE
Vocational and industrial education day and night courses; adult education.

HEAD START
Pre-school training and education for deprived children. Extensive parent training.

HOMEMAKER HOME HEALTH AIDE SERVICE
Homemaker and home health aid service to Community Action and Target area cases.

HUMAN RIGHTS COMMISSION
Process complaints; provide speakers and technical assistance, referrals.

COMPREHENSIVE ALCOHOLISM PROJECT
Inform the public about alcoholism and rehabilitation; coordinate agency efforts in counseling with alcoholics; referrals.

COMMUNITY CENTERS
Classes; programs; community meetings and referrals.

JOB CORPS REPRESENTATIVE
Screen Job Corps applicants; placement of applicant in schools and jobs.

LEGAL AID SOCIETY
Legal services for those unable to pay a lawyer; Lawyer referral service.

LUTHERAN SOCIAL SERVICE
Family counseling; adoption; unwed parents services; parental force counseling; consultation.

MANPOWER DEVELOPMENT COUNCIL ON-THE-JOB-TRAINING
Reimburse employers for supervising training progress or unemployed or underemployed referrals.

MENTAL HEALTH INSTITUTE
Short term intensive adult psychiatric treatment; Geriatric Unit; alcoholic services; Children's Unit ages 8-16; out-patient treatment; extensive training program; information program. Adult Education, referals.

NEIGHBORHOOD YOUTH CORPS
Employment for youth in and out of school 16-21 from low income families; education, tutoring and counseling.

PROBATION OFFICE, UNITED STATES
Supervise federal probationers and parolees. Referrals.

PUBLIC SCHOOLS
Adult Education; guidance service; special education.

RECREATION COMMISSION
Physical and fine arts recreation; clubs; equipment loan; library; recreation for all ages.

RECREATION CENTER
Arts; crafts; drama; hobbies; music; meeting rooms; Little Theatre.

RELIEF OFFICE, COUNTY
Emergency assistance for food, shelter, hospital and medical care; process applications for admission to TB Sanitarium, County Home, School for Retardation, Training Schools, Veneral Disease Clinic, University Hospital, Detention Hospital, Mental Health Institution, transportation for transients; family counseling and referrals.

SOCIAL SECURITY ADMINISTRATION, UNITED STATES
Administer the Federal Old-Age Assistance; Aid to Blind; Aid to families with Dependent Children; Aid to Disabled; Medical Aid to Aged; Work Incentive; license foster homes; place foster children; studies for adoptions; protective services for children.

SOLDIERS RELIEF COMMISSION, COUNTY
General Assistance; hospital and pension applications and all other veterans papers including education.

VETERANS ADMINISTRATION CENTER
Process all applications for veterans benefits and services other than hospitalization; general and surgical services; Social Service Unit.

VOCATIONAL REHABILITATION, STATE
Training and/or suitable employment and education of mentally and physical handicapped people; medical diagnostic work-up; aptitude and psychological testing.

WORK INCENTIVE PROGRAM, COUNTY OR STATE
Education, training, vocational counseling and personal counseling; placement and on-the-job training.

To coordinate efforts in your community, the following contact methods are recommended.

1. Hold an open house for service agencies.
2. Ask representatives of service agencies to be representatives of your advisory committee.
3. Get involved with their programs. If you support them, they will support you.

Contacting agencies for referrals should be a two way street. You need their support, but they would also appreciate yours.

Appendices
on
Chapters III-IV

APPENDIX TO CHAPTER III

HAWKEYE INSTITUTE OF TECHNOLOGY

Box 8015

WATERLOO, IOWA 50704

ADULT HIGH SCHOOL COMPLETION PROGRAM

Student Request For Permission
To Enter Independent Learning Center

Student _____ Date _____

Street _____ Age _____

City, State, _____ Zip Code _____

The above named student requests permission to enter the Adult High School Completion Program of the Hawkeye Institute of Technology.

Recommendations: _____

_____

_____

_____

_____

HIGH SCHOOL _____

Permission granted by _____
(Signature)

_____
(Title)

SS/mt

FEES PAID

Date _____ Rec. No. _____ Amount _____

HAWKEYE INSTITUTE OF TECHNOLOGY

INDEPENDENT LEARNING CENTER APPLICATION

Date of registration _____ Soc. Sec. No. _____

Name: Mr. / Mrs. / Miss _____
Last First Middle Date of Birth

Address _____
Street Number City County Zip

Telephone _____ Last Grade Completed _____

Last School Attended _____

Employment: Full Time _____ Part Time _____ Unemployed _____

Occupation _____ Place of Employment _____

How did you learn about the program _____

Person to Notify in Case of Emergency

_____
Name Address Telephone

_____

_____

Reason Interested in Study Center:

_____ High School Equivalency
_____ Completion of High School Credits
_____ Entrance into Technical Program
_____ Self-improvement
_____ Entrance into College
_____ Deficient in Subject

_____

_____

Program/s to be studied

_____

_____

_____

_____

_____

NAME Mr. Mrs. Miss .....

PROGRAM ..... (Use 1 card per program)

HAWKEYE INSTITUTE OF TECHNOLOGY
INDEPENDENT STUDY CENTER
STUDENT TIME CARD

Color Code
White - H. S. Equiv.
Blue - H.S. Credit
Pink - General Interest
Yellow - Pre-Curriculm .....
Green - Reg. Curriculm .....

DATE	START	FINISH	Total Hrs. (To Nearest ½ Hr)	LAST FRAME COMPLETED	DATE	START	FINISH	Total Hrs. (To Nearest ¼ Hr.)	LAST FRAME COMPLETED

Last Name | First | Middle | Address | Date Started | Date Completed

TEST	SCORE	DATE	TEST	SCORE	DATE

COMMENTS:

DIRECTIONS: DO ONLY THAT WORK WHICH IS CHECKED. DO THE WORK IN THE ORDER MARKED.

Reading _____HSC _____GED _____BU

____Barnell Lofts: No tests. Obtain answer sheet from aide. Your work should be handed in for correction every 5 units.

_____Working with Sounds, Book _____
_____Getting the Main Idea, Book _____
_____Using the Context, Book _____
_____Drawing Conclusions, Book _____
_____Following Directions, Book _____
_____Locating the Answer, Book _____
_____Getting the Facts, Book _____

____*Reader's Digest Advanced Skill Pad:* Obtain workbook and schedule from a teacher.

____*Pictocabulary:* Obtain schedule and answer sheets from teacher aide. Short quiz over each book. Turn in answer sheet after 5 units. 6 books

____*Programmed Reading:* Mid-final after Unit 6. Final test at end.

____*S.R.A. Kits:*
____We Are Black _____
____R.F.U. Kit: Work on Levels _____.
____College Kit: Work on Levels _____.
____Pilot Library: Do 5 successfully from groups _____. Micro Classics _____
____Reading Laboratory—This is used in conjunction with all other reading work.
____Radio Reading _____Purdue _____ORA I _____ ORA II _____ ORA III

____*S.R.A. Words, A Programmed Text:* Schedule in book.

____*Vocabulary For the College Bound:* Schedule in book.

____*Barron's Programmed Vocabulary:* Schedule at desk.

____*Medical Terminology:* Schedule at desk.

____*S.R.A. Developing Your Vocabulary:* Schedule at desk. *Notebook*—At the end of the course you will be required to turn in a notebook containing your work from *Developing Your Vocabulary.* This is for the answers to your individual exercises.

____*World of Ideas:* Schedule at desk.

____*Free to Read:* Schedule at desk.

____*How to Read Factual Literature:* Book _____

____*Novel:* Student will be given list _____ from which he should choose one novel to read.

____If GED ask for GED schedule.

Name_____ Program_____

Fiscal Year_____

July	
August	
September	
Quarter Total	

October	
November	
December	
Quarter Total	

January	
February	
March	
Quarter Total	

April	
May	
June	
Quarter Total	

ADULT HIGH SCHOOL
HAWKEYE INSTITUTE OF TECHNOLOGY
HIGH SCHOOL COMPLETION RECORD
(For Office Use Only)

NAME _____
(Last) (First) (Middle) (Maiden)

HOME ADDRESS _____
(Phone)

G. E. D. Tests

1. Correctness & Effectiveness of Expressions
2. Interpretation of Materials in Social Studies
3. Interpretation of Materials in Natural Sciences
4. Interpretation of Literary Materials
5. General Mathematical Ability

Date Completed _____ Average

EVALUATION OF CREDITS
Complete for HIT Diploma Only

Work Experience Credits ____
(describe below)
H. S. Credits Previously Earned ____
Where _____
(attach transcript)
Credits Earned Through GED ____
From _____ Elective Credits

Required Courses (enter number)

Math(2) _____ Science(2) _____

Eng. (6) _____ U. S. Hist. (2) _____

U. S. Gov't. (1) _____

Total Required Courses Needed ____
Total Elective Courses Needed
Adjusted After Above ____
Total (must equal 32) ____

Reading Score RFU _____

Complete for grade transfer to other school

Permission Letter Attached _____
School _____
Report Sent (date) _____

High School Completion Credits Earned

Subject	Gr.	Cr.	Date	Instructor

Date Diploma Granted _____

Comments _____

LETTER OF WELCOME

Welcome to Hawkeye's Independent Learning Center

In the Learning Center you will work individually with programmed materials. This type of learning permits you to study at your own convenience and at your own speed. An instructor is always on duty to aid you. Don't hesitate to ask questions: the instructor's first job is to work with you. Although instructors may look busy, they can answer many more questions than they ever get.

For reference, the Center is open 8:00 a.m.-10:00 p.m. Monday through Thursday, and 8:00 a.m.-5:00 p.m. Friday. We are closed weekends. Please watch the magnetic board for important messages about school closings, etc. This is our only system of communicating with so many students.

Each course is to be paid for before you start it. You do not have to purchase books; these are furnished. Because of the limited number, books are not checked out, and you are not to take any books from the Center. All work is done in the Center. There is no homework. You will sign a library card for each book you check out to use in the Center and leave the card at the front desk. Do not write in the books. *You will need pencils and paper.* Please bring these supplies with you when you come to study. Pencils are sold for 5c each if you do not have one.

Remember to mark your time card each time you study in the Center. It is important that your hours be recorded. These cards should remain in the file at all times. It is not necessary to sign out on the time card for a 5, 10 or 15 minute break; however if you plan to be gone longer than 15 minutes, this time should be deducted on the time card. The hours on the card should be study time only.

Your progress will depend on your own rate. Progress tests do accompany most programs. Grades are given so credit may be earned. You will be able to recognize your strength or your weakness by the progress tests which accompany the programmed materials. There is no reason why you cannot succeed in working here if you are willing to apply yourself and do your best. It is important, therefore, that you discipline yourself to come in and study on a regular schedule. There is no refund on tuition, but there is more than money to lose if you begin working and do not finish. Set yourself a goal of finishing certain set parts by certain times and maintain a schedule to complete it. Never allow yourself to go longer than 1 week without studying. If you aren't absent the *first* time, you won't have trouble. Once you miss your first regular day its much easier to miss the next one. Be diligent.

Remember that you can succeed. Failing a test is *not* a major setback and often results from one or 2 simple misunderstandings. If you fail a test be sure to see an instructor before going on.

If you have reason to disagree with any answers or explanations given in the programs, please do not proceed until you have discussed the problem with your instructor. You may be working at an uncomfortable level or you may have found a typographical error in one of the newer programs. Please feel free to ask for help.

The Canteen Service does bring food at 12:30 p.m. each day. The lounge off the Center is provided for your convenience if you wish to take a break or smoke. Food should be taken to the downstairs lounge. Vending machines are also available downstairs for your use. The lounges are shared by many people in this building so your cooperation is needed in keeping the area *clean* and your break short. The ladies' restroom is located in the lounge area outside the Center. The men's restroom is upstairs; the stairs are located near the front of the building.

Free counseling is available through Bruce Stoll. Just call him or stop in when the door is open. This service is free and confidential. Help is available in:

A. Academic areas-example-school grades and study habits.
B. Vocational-example-career decisions, information and aptitude testings.
C. Personal-example-anything that may affect your success at Hawkeye or your future.

Don't wait for critical situations to arise before seeking counseling. Counseling is not a last resort thing. Counselors are just people trained to help you achieve what you desire.

The parking lot across the street is available to you if room permits. If this is full, I would suggest street parking. Office telephones are not for student use. We will take emergency messages. Be sure your time card is accurate so we can be sure if you are here.

Remember:

1. To sign time card each time you come in.
2. To leave the signed library card from each book at the front desk when you take a book to use in the Center.
3. To take scheduled progress tests. Ask for them at the front desk. Be sure to label them carefully with number form, date, name, etc.
4. To sit at testing tables while testing. You should have no other materials with you.
5. To return corrected tests to top basket on front desk.
6. To return books to designated area when you leave.
7. To sign out on your time card.

If at any time you have any questions or feel lost, please ask for help. We are all here to be bothered and will gladly talk with you at any time. Stop by the office if I am not talking to someone or make an appointment by calling or asking the person at the front desk. If you ever think you are not going to be able to continue, or must drop for sometime, see or call me so we can discuss it. Thank you,

David V. Herrmeyer

Dave V. Herrmeyer, Assistant Coordinator
Independent Learning Center
DVH/mt

Student Handbook
for
Independent Learning
Center

Welcome to Hawkeye's Individualized Learning Center

The Learning Center is a different kind of school. It is set up so you can attend whenever you want, day or night. It is also set up so you can work at your own speed. If you have difficulty you can take extra time to work on the materials, yet if you find the work easy you can go more quickly and finish in less time.

In order to provide such a flexible program it is impossible to use regular classroom and teacher lecture methods. Instead, programmed materials and other self-study methods are used so that usual classroom techniques aren't needed. A sample of programmed materials is attached here. Using this method frees the instructor to work with you individually on any problem area. The instructor's only responsibility is to act as a special tutor for you whenever you have a question. Remember this, so you will not be afraid to ask for help when you need it. The instructors may sometimes look busy, but they can answer many more questions than they ever get.

The instructor will start you on the work. Each course has a written outline which the instructor will give you to follow so you always know what to do. This outline is intended as a guide for you to follow. If you find the materials boring or too difficult, you may help the instructor to find other materials or you may work on approved projects in place of sections of the materials. Naturally, you may follow the written schedule as it is given you if you prefer.

The teacher will explain all of the procedures to you, but in case you forget, these are the steps you follow.

Procedures

1. Sign in on your time card. The card will be given you by the instructor. It is important that you sign in whenever you are in the building.
2. Place the card in the proper file where it should be left whenever you are studying in the Center. This will help us to know you are studying in case of emergency messages.
3. Get the book you need from the shelf. Your schedule will tell you which book you need. If you do not find it, see the instructor.
4. Study the book, asking questions whenever you are not sure about the reading. Dictionaries are available if you need one.
5. When you come to a point where you need to take a test, review the material, then ask the instructor for the test. You will need to describe carefully which test you want. Be sure to write the test form and number and the course title on your answer sheet so the test can be properly scored. Remember to put your name on the test paper too. You must take the test at the specially marked testing tables. You should have no other materials with you. Hand the test back to the instructor who will score it as soon as possible. Your grade will be entered on the back side of your time card when it is corrected. You can check there to see how you have done.
6. When you are ready to leave return your book to the exact place you found it and sign out on your time card. Be sure you add up the time you spend and enter it properly on the card. File the card back in the file under the first letter of your last name so you can find it next time.
7. When you finish a course turn your time card in to the instructor and tell him or her whether you want a report sent or if you will take more courses.

Progress

Your progress in the Center will depend on your own ability and how hard you work. Tests are provided to help you recognize strengths and weaknesses and to enable you to earn high school credit. We do expect each student to progress steadily in the work. The average student should be able to complete an amount of work equal to one high school credit for every 40 to 50 hours spent in the building. We reserve the right to terminate students who are not progressing satisfactorily. There is no reason why you cannot succeed in the Learning Center if you are willing to apply yourself and work hard while you are here. Failing a test is not a major setback. You may just need to change course materials or you may have misunderstood some sections of the material. If you fail a test be sure to see an instructor before going on.

Attendance

The Center is open day and night. For reference the hours are from 8:00 a.m. to 10:00 p.m. Monday through Thursday and 8:00 a.m. to 5:00 p.m. on Fridays. We are also open on Saturday mornings at certain times of the year. Ask the instructor if you are interested in studying Saturdays. Work is expected to be done in the Center unless special circumstances force you to need "at home" study. Some courses can provide books for check-out if needed. A deposit is required. *Note:* Never take a book from the Center without checking it with a teacher first.

You should discuss your study schedule with the instructor when you enroll. You do not have to stick to a schedule, but if you don't plan and set aside time to come in you will not complete your work. Never allow yourself to go a week without coming in to study or to take a test. There is no refund on tuition, but there is more than money to lose if you fail to complete the work. Be diligent and don't let anything stand in the way of getting your work done. If you work hard it doesn't take very long to finish a course.

Breaks

You may take breaks whenever you please, but time spent does count on your record. The school does not provide recreation. The facilities are to be used only for educational purposes. Please don't allow your talking or visiting with others to interfere with those who are studying. Take a break in the lounge area if you intend to hold extended conversations. Visitors who are not students are not allowed in the building without a special pass showing their purpose and when they are to leave. Please do not let people visit you while you are here. Phone messages will be limited to emergencies only. A pay phone is located in the hall. A lounge is provided for eating. The Canteen Service brings food at 12:30 each day. You are expected to keep the lounge area clean. The lounge is shared by many people. Make your breaks short so others can use the area. The ladies restroom is located in the lounge area outside the Center. The men's restroom

(Student Handbook, continued)

is up the stairs located at the front of the building. Smoking is permitted in the Center but we ask you to respect others who may be bothered by smoke. Please hold your smoking to a minimum.

Counseling

You should have seen a counselor as part of your enrollment procedure. Counseling is free and confidential in such areas as

A. Academic areas—example—school grades and study habits.
B. Vocational—example—career decisions, information and aptitude testing.
C. Personal—example—anything that may affect your success at Hawkeye or your future.

High School Credit

If you are taking work for High School credit, all work done on which you receive failing grades must be repeated. However, not all repeated lessons or tests will count toward grade improvement. Since courses vary, be sure to see an instructor about how many repeats count in your particular course. If there is no alternate test, the original test is repeated and the 2 grades are averaged. Study some extra for the first test or 2 until you see how you do. Don't use up your repeat chances by getting off to a bad start. Be sure each test is passed before taking the next one.

Progress tests are graded on a straight percentage basis with final tests counting double. The scale reads:

70- 79 = D
80- 89 = C
90- 94 = B
95-100 = A

Special Note: YOUR FINAL GRADE MUST ORDINARILY AVERAGE AT LEAST A **C** FOR YOU TO RECEIVE CREDIT IN A COURSE. D grades are acceptable on individual tests as long as the average course grade remains C or better. If you receive a D it would be well to have a teacher look at the test. If you are in a course using programmed material and you receive a D, you must hand in the answers to the frames in the next unit before taking the next test.

Credit will be issued only when the instructor has evaluated your work, your tests and the time you spent. You are not penalized for rapid completion of a course provided you have done all scheduled work and have spent at least the amount of time required for the minimum standards below.

21-25 hours per credit = A is lowest acceptable grade
26-30 hours per credit = B
31-40 hours per credit = C

If grades or hours do not meet this minimum, then extra work will be assigned by the instructor so the standard can be met. While tests ordinarily determine grades, the instructor may raise or lower a grade to properly give credit for exceptional progress, good or bad. Remember that 40 to 50 hours is the average time spent per course. The instructor always determines when your course is completed and you are not done until they assign you a grade.

Upon completing a course you must turn in your time card and have an instructor approve the credit. Be sure to tell the instructor if you are finished taking courses with us so we can have report cards sent. When you have completed all your credits and have requested a report, you will receive your grades by mail within a few days. If the credits are for another school they will be sent there also.

We are not responsible for your taking credits you have already completed at school. You cannot take the same course twice and it is your responsibility to be sure no courses are duplicated. School will reject such duplicated credits.

Miscellaneous

Materials—You only need pencil and paper. Pencils are sold for 5c each. Please do not write in books or on tests as these remain the property of the school and are re-used.

Parking—Parking across the street by the recreation center is marked. If that is full I suggest street parking. Cars parked in local business spaces will be towed away.

Fees—All fees must be paid before grades or records will be released. There are no exceptions. Fees should be paid before beginning courses except when a delay is especially approved and payment provisions made. There are no refunds.

VA Approval—The Center is VA approved. Be sure you inform us if you want VA benefits.

Social Security—The Center is not approved for social security recipients over 18 who must attend school to receive benefits.

Demonstration of Programmed Instruction

Hawkeye Institute of Technology **Exhibit 3A**

DEMONSTRATION PROGRAM INSTRUCTIONS

This is a sample of programmed instruction. It is different from the usual material used in school because with programmed material you study by yourself, not with a class or group. To use this type of material you must cover the right hand column with a piece of paper. Read the material until you come to a blank. Write your answer **to the blank** on a separate sheet of paper, not in the book. When you have written your answer slide your cover sheet down to check the correct answer with yours. Do not uncover the correct answer until you have written your own answer. If your answer is correct, go on. If your answer is wrong, go back over the material until you understand why. These sample frames will give you the information you need to complete your work properly.

1. When you find a blank in any frame, you simply write on your paper whatever best fits the blank. For example, programmed material is used for studying individually therefore there is no need for a _____ ___. (class/book) — class

2. When a blank has 2 answers underneath, you select the better one. For example, with programmed material a person can study whatever he wants and whenever he wants because he doesn't need to wait until there is a _____. (group/book) — group

3. Each item of numbered information is called a FRAME. Each frame is part of a larger plan or PROGRAM that helps you to learn quickly and easily. You have just completed reading frame number _____. — 3

(Student Handbook, continued)

4. Reading programmed materials is more like having a conversation that helps you to learn. Since a conversation takes 2 people, there is a blank provided to give _____ something to say. you
   me/you

5. Programmed materials allow you to work at your own speed. You don't have to worry about keeping up with a class or being held back by slower people. If you have difficulty you _____ your speed. reduce
   reduce/increase

6. If the work is easy you _____ your speed as
   reduce/increase
   your ability allows. You aren't punished for being faster or slower than average. increase

7. Remember to keep the answers covered. If you do not, you may not really be learning. You must write the answers on a sheet of paper and hand them to a teacher before taking the first scheduled test. If you get 80% or better on the first test you can stop writing the answers and just have them in your mind before checking with the correct answer. You must still cover the _____, but you can go faster without having to write the answer down. answers

8. If your grade goes below 80% on any test, you will need to write the answers on the following until you bring your score up to _____. 80%

9. Since you work at your own pace, you should be able to understand the material and get good grades. You may want to take brief notes to help you review for tests. With individualized instruction it is easier to get good _____. grades
   grades/notes

10. If you do not understand the material, you should ask an instructor for help. Instructors are always on duty. Their job is to help you. If you don't ask for help the instructor will be out of a _____. job

11. Our instructors are hired for their friendliness and helpfulness. With their help you can succeed in the work. You must not be afraid to ask for help. Paul Revere was made famous because of a historical ride he made to ask for help. You and I might not be here today if Paul Revere had been afraid to ask for _____. help

12. Since there is no class, you can start and stop courses at any time. You can also set your own time to study. If you are absent a few days you don't fall behind the class. Because of these things you are able to set up your own individual study _____. schedule
    schedule/course

13. Since there is no schedule set by us, it is easy to put off coming in to study. It is important that you schedule a specific time for studying and try to stick to that _____. schedule

14. Because programmed materials eliminate many of the problems that face students, learning can become more enjoyable. You can work at your own speed, get good grades, and have plenty of help any time you ask for it. The only thing we can't give you is the determination to get it done. Our aim is to provide you with a unique learning opportunity that will help you reach your particular goal. We hope you will succeed.

We are all happy to help make this educational opportunity available to you. It won't be easy, but it can be done. If you have questions, feel lost, are discouraged, bored, or troubled, see me, a teacher or a counselor. We are all here to help you succeed. I'm sure you will enjoy the experience.

Thanks and do well.

David V. Herrmeyer, Coordinator

Hawkeye Institute Independent Learning Center Requirements for Receiving High School Credit

You will be given progress tests at regularly scheduled intervals in each course. Be sure you take the tests as scheduled. Grades will be recorded on the back of your time card. Any time you fail a test you must see an instructor *before going on.* You will need to re-study and raise your grade to a satisfactory level.

All work done on which you receive failing grades must be repeated. However, not all repeated lessons or tests will count towards grade improvement. Since courses vary, be sure to see an instructor about how many repeats count in your particular course. Many courses have alternate test forms available. If there is no alternate test, the original test is repeated and the 2 grades are averaged. Study some extra for the first test or two until you see how you do. Don't use up your repeat chances by getting off to a bad start. Be sure each test is passed before taking the next one.

Progress tests are graded on a straight percentage basis with final tests counting double. The scale reads:

70- 79 = D
80- 89 = C
90- 94 = B
95-100 = A

SPECIAL NOTE: YOUR FINAL GRADE MUST ORDINARILY AVERAGE AT LEAST A C FOR YOU TO RECEIVE CREDIT IN A COURSE. D grades are acceptable on individual tests as long as the average course grade remains C or better. If you receive a D it would be well to have a teacher look at the test. If you are in a course using programmed material and you receive a D, you must hand in the answers to the frames in the next unit before taking the next test.

Credit will be issued only for satisfactory effort as determined by the tests, the time you spend, and the instructor's evaluation. In each course you are given a certain amount of material for each credit. You are done when you satisfactorily complete the material. You will not be penalized for rapid completion of a course as long as your hours fit into the following pattern:

25 hours or less per credit = A as lowest acceptable grade
26-30 hours = B
31-40 hours = C
100 hours = U (automatic Termination)
40-50 hours is average

Upon completing a course you must turn in your time card and have an instructor approve the credit. Be sure to tell the instructor if you are finished taking courses with us so they can have report cards sent. When you have completed all your credits and have requested a report, you will receive your grades by mail within a few days. If the credits are for another school they will be sent there also.

Be sure to see an instructor when questions or problems arise. DON'T WAIT TO FAIL A TEST BEFORE ASKING FOR HELP!

APPENDIX TO CHAPTER IV

HAWKEYE INSTITUTE OF TECHNOLOGY
INDEPENDENT LEARNING CENTER—HIGH SCHOOL COMPLETION
BIBLIOGRAPHY JANUARY 1974

		Unit Price	*Primary Use*
Ainsco School Publication (not programmed)			
315 Hudson Street, New York, New York 10013			
5—Voc. for the High School Student		1.25	Gen. Interest—Ged
5—Voc. for the College Bound Student		1.25	Gen. Interest
2—American History Review Text		1.45	GED
1—Review Text Biology		1.40	Gen. Interest
1—Review Text Chemistry		1.40	Gen. Interest
1—Fundamental Concepts of Modern Chemistry		1.40	Gen. Interest
2—Review Text—General Science		2.00	Gen. Interest
1—Reviewing Plane Geometry		1.25	GED
1—Ten Steps in Writing the Research Paper		.80	Gen. Interest
10—Preliminary Math Review		1.66	Gen. Interest
3—Review Text Physics		1.40	Gen. Interest
Appleton-Century Crofts			
440 Park Avenue, S., New York, New York 10016			
5—Spelling by Principles		2.90	GED
3—Programmed College Composition		4.95	H.S. Cr.
1—A Program for Effective Writing		3.90	Gen. Interest
Argyle Publishing Corporation			
235 Park Avenue, S., New York, New York 10013			
1—A Successful Retail Salesmanship		3.75	Gen. Interest
2—How to Use the Business Telephone		3.75	Gen. Interest
1—Improving Your Written Communications		9.75	Gen. Interest
1—Principles of Selective Listening		9.75	Gen. Interest
1—The Secretary: Jill of All Trades		9.75	Gen. Interest
* 2—Selected Medical Terminology		10.00	Pre-Curr.
Barron's Educational Series, Inc. (not programmed)			
113 Crossways Park Drive, Woodbury, N.Y. 11797			
1—Barron's Vocabulary Builder		1.25	Gen. Interest
2—How to Prepare for the H.S. Equivalency Exams		3.00	GED
Behavioral Research Laboratories			
Box 577, Palo Alto, California 94302			
* 3—Geography of the U.S. (East, Central, West)		9.96	H.S. Cr.
3—Map Booklets (East, Central, West)		3.84	H.S. Cr.
3—Test Booklets (East, Central, West)		1.86	H.S. Cr.
1—Teacher's Manual for Geography		1.21	H.S. Cr.
* 1—Consumer Math Series (7 Books)		20.00	H.S. Cr.
* 3—American Economics Series (7 Books)		20.00	H.S. Cr.
* 1—Principles of Modern Biology (set of 9 books)		32.00	H.S. Cr.
1—Principles of Chemistry (set of 8 books)		32.00	H.S. Cr.
* 2—Specimen Kit for Health and Safety (books, reviews and tests)		15.67	H.S. Cr.—Personal Health
* 3—United States Constitution		2.87	H.S. Cr.—U.S.
(Test booklets and teacher's manual)		.94	Gov't.
* 4—The American Government, Volumes I and II	each	3.67	H.S. Cr.
(Test booklets, Volumes I and II)	each	.48	
(Teacher's manual, Volumes I and II)	each	.56	
* World Affairs (books, tapes, and tests):			H.S. Cr.
1—Negro Crisis (10 books minimum)		15.71	
1—Viet Nam		15.71	
1—Russia Vs. China		15.71	
1—Will the UN Survive		15.71	

Cambridge Book Company (not programmed)
Cambridge Building, Bronxville, N.Y. 10708

* 5	We Hold These Truths—U.S. History	1.00	GED
10	Unit Review of General Science	1.00	GED
1	Better and Faster Reading	1.15	GED
10	Reading for Comprehension, Book 1 and 2	.75	GED
10	Basic Skills in Grammar, Book 1 and 2	.75	GED
10	Increase Your Vocabulary, Book 1 and 2	.65	GED
5	The GED Handbook of Basic Science	3.95	GED
10	Spelling	.75	GED

Center for Cassette Studies
8110 Webb Avenue, North Hollywood, California 91605

Tapes:

1	Basic Consumer Law	14.95	H.S. Cr.—Cons. Ed.
1	The Purchase	13.00	H.S. Cr.—Cons. Ed.
1	Repossession	13.00	H.S. Cr.—Cons. Ed.
1	High Lights from Red Badge of Courage	15.95	H.S. Cr.—Ind. Rdg.
1	An Ernest Hemingway Treasury	14.95	H.S. Cr.—Am. Lit.
1	Life on the Mississippi	15.95	H.S. Cr.—Eng. 4
1	Farewell to Arms	18.95	H.S. Cr.—Ind. Rdg.
1	An American Tragedy	18.95	H.S. Cr.—Ind. Rdg.
1	Anatomy of a Vitamin	12.95	H.S. Cr.—Per. Health
1	Communist China	14.95	H.S. Cr.—World Affairs
1	Emotional Illness	10.95	H.S. Cr.—Psychology
1	Goodbye, Mr. Chips	18.95	H.S. Cr.—Ind. Rdg.
1	The Role of Carbohydrates	12.95	H.S. Cr.—Per. Health

Coronet Instructional Films
65 E. South & Water Street, Chicago, Illinois 60601

3	Your Study Skills	1.50	Gen. Interest
1	Introducing the Metric System	1.50	Gen. Interest
1	Chemistry Concepts, The Molar Method	1.50	Gen. Interest
6	Figures of Speech	1.50	Gen. Interest
1	Vocabulary Growth: Divide and Conquer Words	1.50	Gen. Interest

***Cowles Education Corporation** (not programmed)
Dept. 048, 488 Madison Ave., New York, N.Y. 10022

25	Correctness and Effectiveness of Expression	each	2.95	GED
25	Reading Comprehension in Social Studies	each	2.95	GED
25	Reading Comprehension in Literature	each	2.95	GED
25	Reading Comprehension in Natural Sciences	each	2.95	GED
25	General Mathematic Ability	each	2.95	GED
1	How to Pass High School Equivalency Exam.		3.95	

Delmar Publishers
P.O. Box 5087, Albany, N.Y. 12205

1	Slide Rule Series (5 books)	5.50	Pre-Curr.
1	Blueprint Reading (5 books)	5.50	Pre-Curr.
1	Basic Automotives (9 books)	10.00	Pre-Curr.
1	Mathematics and Shop Series (6 Books)	6.50	Pre-Curr.
1	Basic Math Simplified		Pre-Curr.
1	Automotive Trade	2.12	Pre-Curr.
1	Carpentry Trades	4.00	Pre-Curr.
1	Electrical Trades	2.12	Pre-Curr.
1	Machine Trades	3.80	Pre-Curr.
1	Sheet Metal Work	3.20	Pre-Curr.
1	Medications & Math for the Nurse	4.60	Pre-Curr.

Doubleday
Garden City, New York 11531

1	Understanding Shakespeare: MacBeth	5.95	Gen. Interest

Educational Methods
20 East Huron Street, Chicago, Ill. 60611

1—Poetry: Method and Meaning		2.50	Gen. Interest

Educational Systems Development
Box 457, Royal Oak, Michigan 48068

1—Fundamentals of Nutrition I		2.00	Pre. Curr.
1—Fundamentals of Nutrition II		2.00	Pre. Curr.
1—An Introduction to Human Dentition		2.50	Pre. Curr.

Encyclopaedia Britannica Press, Inc.
425 N. Michigan Ave., Chicago, Ill. 60611

*55—Introduction to Basic Math (4 books in set)	each	12.00	GED, H.S. Cr., Pre-Curr.
3—Teacher's manual, supplement and test booklet		2.50	
3—Modern Mathematics for the Junior High School (4 books in set)		12.00	H.S. Cr.
*10—Algebra I w/supplement (5 books in set)		12.00	H.S. Cr.—Pre. Curr.
1—Introduction to Verbal Problems in Algebra		3.50	Gen. Interest
Teacher's manual		1.00	
5—Modern Algebra: A First Course w/supplement		12.00	Gen. Interest
Teacher's manual and test booklet (Fms. A&B)		4.10	
* 5—Algebra II w/supplement (5 books in set)		12.00	GED, H.S. Cr., Pre-Curr.
Extra Supplement, teacher's manual, test booklet with answers		4.60	
2—Plane Geometry w/supplement		18.50	GED, H.S. Cr., Pre-Curr.
2—Supplement, manual and test booklet		8.10	
2—Solid Geometry w/supplement		13.75	Gen. Interest—H.S. Cr.
Extra Supplement, teacher's manual, test book		2.50	
3—Trigonometry w/supplement		11.75	H.S. Cr.
Extra supplement and teacher's manual, test book		4.35	Gen. Int.—H.S. Cr.
3—Analytic Trigonometry w/supplement		13.50	Gen. Int.—H.S. Cr.
Extra supplement, test booklets, teacher's man.		3.60	
3—Introductory Calculus, Part I w/supplement		6.10	Gen. Int.—H.S. Cr.
5—Extra supplements, test booklets		1.75	
*25—Preparing for Algebra		2.75	GED
1—Test Booklet, teacher's manual		1.10	GED

Eyegate
Randy Rott, 3921 Warwich, Kansas City, Missouri

What to Look for in Drama and Fiction:			
1—The Use of the Title (filmstrips and tape)		11.00	H.S. Cr.—Amer. Lit.
1—Symbols		11.00	H.S. Cr.—Amer. Lit.

Fearon Publishers
2165 Park Blvd., Palo Alto, California 94306

1—Audio-Lingual English Series (workbooks & records)	set	140.00	GED—English as a 2nd Language

Field Educational Publishers, Inc.
902 South Westwood, Addison, Illinois 60101

5—Free to Read	each	3.00	GED—H.S. Cr.
5—World of Ideas	each	3.00	GED—H.S. Cr.

Follett Publishing Co.
1010 W. Washington Blvd., Chicago, Illinois 60607

* 5—sets American History Study Lessons (9 booklets)	each	4.62	H.S. Cr.
Teacher's guide and tests		3.69	
* 2—sets of World History Study Lessons (9 booklets)		5.59	H.S. Cr.
Teacher's guide and tests		3.69	
2—Accent/Consumer Education (6 books)		11.00	H.S. Cr.
Instructor's book for series		1.50	

General Learning Corporation
Mr. William Denton, Marketing Director
460 South Northwest Hwy., Park Ridge, Illinois 60068

*	General Education Program		160.00	GED—Pre-Curr.

Globe Book Co.
175 Fifth Ave., New York, N.Y. 10010

*20	—Programmed Reading	each	2.40	GED, H.S. Cr., Pre-Curr.

Harcourt, Brace and World, Inc.
7555 Caldwell, Chicago, Illinois

2	—Adventures in Living (not programmed)		4.00	H.S. Cr.
5	—Poetry—A Closer Look (paperback)		1.60	H.S. Cr.
	Teacher's manual		.60	
*10	—English 2200 -w/test booklets (paper)	each	2.80	GED & H.S. Cr.
*20	—English 2600 w/test booklets (paper)	each	3.00	GED & H.S. Cr.
*20	—English 3200 w/test booklets (paper)	each	3.60	GED & H.S. Cr.
*10	—Adventures in American Literature (not programmed)		5.00	H.S. Cr.
	Teacher's manual and test		1.00	
1	—Many Voices 11A and 5A (Records)	each	12.00	H.S. Cr.—Amer. Lit.
1	—Ernest Hemingway, The Man: A Biographical Inter. (Record)		35.00	H.S. Cr—Amer. Lit.
* 9	—Spelling 1500: A Program		3.31	GED
* 5	—Steps to Reading Literature (Book 2 w/test)		2.60	H.S. Cr.
3	—Building the American Nation			GED

Hertzberg New Method Perma-Bound
Vandalia Road, Jacksonville, Illinois 62650

* 1	—Literature Exploration Laboratory and supplements (35 paperbacks)	set	99.95	H.S. Cr.

D.C. Heath & Co.
2700 N. Richardt Ave., Indianapolis 46206

2	—Record of Mankind (not programmed) World History		7.74	Adv. H.S. Cr.
	Work Books (sold to students)		3.00	

Holt, Rinehart and Winston (not programmed)
645 North Michigan Ave., Chicago, Illinois

4	—Citizenship and Government in Modern America	each	5.24	GED
5	—Modern Health		5.41	Pre-Curr. & H.S. Cr.

Learning Lab. Inc.
McGraw-Hill Book Company, Inc.
350 W. 42 Street, New York, N.Y. 10016

1	—Effective Letters			Gen. Interest
1	—West: 300 Commas (paper)		1.20	H.S. Cr.
4	—Huffman: Programmed Business Math (4 vols.)		10.00	Adv. H.S. Cr.
	Test Booklets and teacher's manuals for each vol.			
3	—Business English Essentials		3.75	H.S. Cr.
5	—English Review Manual		5.00	Gen. Interest
	Teacher's manual			
5	—Business English (not programmed) text kit		4.00	Gen. Int.—H.S. Cr.
1	—Brief Algebra Review Manual		4.50	Gen. Interest
2	—Programmed College English		3.30	H.S. Cr.
1	—Programmed Blueprint Reading		6.08	H.S. Cr.
1	—Programmed Course in Basic Electricity		5.95	H.S. Cr.—Pre-Curr.
1	—Programmed Course in Basic Electronics		6.95	H.S. Cr.—Pre-Curr.
1	—Programmed Course in Basic Transistors		6.95	H.S. Cr.—Pre-Curr.
1	—Basics of Successful Salesmanship		4.95	H.S. Cr.—Pre-Curr.
1	—Spelling Improvement			H.S. Cr.—Pre-Curr.
1	—Basic Slide Rule			H.S. Cr.—Pre-Curr.

The MacMillan Company
1375 Spring Street, N.W., Atlanta, Georgia 30309

1—How a Bill Becomes a Law (paper) Test Booklet and Teacher manual	3.48	Low H.S. Cr.—U.S. Gov't.
1—Understanding Modern Math		GED

Metromedia Analearn
235 Park Avenue South, New York, N.Y.

1—Fundamentals of Effective Purchasing	10.00	Gen. Interest
1—The Guts of Salesmanship		Gen. Interest
1—Successfully Planning the Sales Call		Gen. Interest
1—Successful Retail Salesmanship		Gen. Interest
1—How to Motivate Employees		Gen. Interest
1—Managing Human Relations		Gen. Interest
1—Effective Decision Making		Gen. Interest
1—The Professional Secretary from A to $		Gen. Interest
1—How to Use a Business Telephone		Gen. Interest
1—Selected Medical Terminology		Gen. Interest

Milwaukee Technical College
Milwaukee, Wisconsin

* 1—McHale's Technical Math (complete set)		Pre-Curr.

Modulearn
P.O. Box 635, San Juan Capistrano, California 92675

United States History I	7.00	H.S. Cr.
United State History II	7.00	H.S. Cr.
American Government	7.00	H.S. Cr.

Office of Economic Opportunity
Washington, D.C. 20506

1—Job Corps Series		GED
1—Advanced General Ed. Program (1 set)		GED

Prentice Hall, Inc.
Englewood, New Jersey 07632

7—Be a Better Reader (not programmed) Teacher's manual and key	1.67	GED

J. Ravin Publications
5056 Yerba Anita Way, San Diego, California 92115

1—Advanced Slide Rule: The Log Scales	5.75	Pre-Cur.—Gen. Int.

Reader's Digest Educational Division
Pleasantville, New York 10570

1—Skill Builder Kit—Advanced	50.00	GED & H.S. Cr.
1—Level 6 cassettes for audio lesson program	11.90	GED & H.S. Cr.

H. M. Rowe
600 West Van Buren, Chicago, Illinois

10—College Business Correspondence (Sold to students) Tests and teacher's manual	3.96	H.S. Cr.

W. B. Saunders Company
West Washington Square, Philadelphia, Penn. 19105

* 2—Basic Nursing Techniques	3.50	H.S. Cr.—Pre-Curr.
* 2—Basic Patient Care	3.50	H.S. Cr.—Pre-Curr.
* 3—Drugs and Solutions	2.00	H.S. Cr.—Pre-Curr.

Science Research Associates (not programmed)
259 Erie Street, Chicago, Illinois 60611

3—Words			GED—H.S. Cr.
* 2—RFU Kit, General Edition (3-2300)		32.50	GED—H.S. Cr.
Student Record Books (3-2310)		.24	GED—H.S. Cr.
* 1—Reading Laboratory IVa (3-2210)		58.50	GED—H.S. Cr.
Student Record Books (3-2210)		.51	GED—H.S. Cr.
* 1—College Reading Program One (Kit)		91.50	GED—H.S. Cr.
1—How to Become a Better Reader		2.48	GED—H.S. Cr.
*10—Developing Your Vocabulary		2.48	GED—H.S. Cr.
* 2—Basic Composition		5.83	H.S. Cr.
Developing Ideas			
Approaches to Writing			
1—How to Read Factual Literature—Books 1, 2, 3			H.S. Cr.
1—Pilot Library (Youth Oriented)		60.00	H.S. Cr.

Scott, Foresman and Company
1900 E. Lake Ave., Glenview, Illinois 60024

10—Basic Reading Skills for High School (not prog)		1.40	GED

Southwestern Publishing Company
5001 Harrison Street, Chicago, Illinois

1—Basic Rules of Alphabet Filing	Complimentary		H.S. Cr.

Steck-Vaughn Company
P.O. Box 2028, Austin, Texas 78767

*10—Basic Science for Living (2 vols)		1.76	GED
8—Gateways to Spelling			GED
10—English Essentials	each	.75	GED
10—General Education Series (6 books)	each set	9.00	GED

Teaching Materials Corporation
575 Lexington Ave., New York, N.Y. 10017

2—General Science Series (4 books):		44.00	Gen. Int.—H.S. Cr.
3—TT401—Biology & Chemistry			
3—TT402—Work & Machines			
3—TT403—Measurement, Meteorology & Astronomy			
3—TT404—Sound, Light & Electricity			

Westinghouse Learning Corporation
P.O. Box 10680, Palo Alto, California 94304

1—Algebra		11.95	H.S. Cr.
* 1—Psychology		11.95	H.S. Cr.
1—Sociology		10.95	H.S. Cr.
Audio Tape Supplement		35.00	H.S. Cr.

John Wiley and Sons, Inc.
605 Third Avenue, New York, N.Y. 10016

2—Medical Terminology		4.75	Pre-Curr.
5—Math for Nursing Science		3.50	Pre-Curr.
1—Introduction to Number Systems		3.95	Pre-Curr.
3—Understanding Food		7.39	H.S. Cr.
1—Programmed Physics (difficult)			

*Materials Used Extensively

David V. Herrmeyer,
Coordinator
Independent Learning Center
Hawkeye Institute of Technology
Waterloo, Iowa

AREA VII
HAWKEYE INSTITUTE OF TECHNOLOGY
Independent Learning Center
Waterloo, Iowa

Description of Courses

Name of Course	*H.S. Semester Credit*	*Course Description*
Reading		
Reading Improvement (grades 9,10,11,12)	1	A placement test determines the starting level in various SRA reading Kits. Vocabulary, comprehension, and speed reading equipment, are stressed.
Individualized Reading (grades 9,10,11,12)	1	A placement in reading determines the reading level. Students select novels that add up to a set number of hours reading time from the proper grade level list. Worksheets and final tests accompany each book.
Literary Analysis (grade 12)	1	An analysis of the symbolism and characters in three novels: *Huck Finn, Catcher in the Rye,* and *Intruder in the Dust.*
GED Reading	0	Preparation in reading for understanding and vocabulary for social studies, science and literature GED tests.
Speed Reading (grade 11, 12)	1	Course designed to build reader's speed from 25% to 100% while maintaining 70% comprehension. Students use equipment and workbooks in reading laboratory setting.
English		
Practical English (grades 9,10,11,12)	1	A pre-test is used for placement into *English 2200, 2600,* or *3200.* Content is basic grammar.
English Grammar (grades 9,10,11,12)	1	Continuation of Practical English course. Pre-test is used for *English 2600* or *3200.*
English 4 (grade 10)	1	A unit study including various forms of American literature. Units include "Who Am I," "Turning Point," and "Measuring Up." Text is *Adventures in Living.*
American Literature (grade 11)	1	A study in *Adventures in American Literature.* A programmed supplement, paperbacks, filmstrips, and tapes accompany the text.
Business English (grades 11,12)	1	Students learn to communicate effectively in business. Text is *Business English Essentials.* Stress is on correct usage necessary for letter writing.
Business Correspondence (grades 11,12)	1**	*College Business Correspondence* is a workbook that teaches the student to write all types of correspondence used in business. Students must buy workbooks.
College English (grades 11,12)	1	Fundamental structure of basic thought expression using principles of structural linguistics. Text is *Programmed College English.*
Modern English (grades 11,12)	1	A synthesis of traditional grammar, structural linguistics, and transformational grammar. Text is *A Program in Modern English.*
Basic Composition I (grades 9,10,11,12)	1	*Developing Ideas* is an individualized writing sequence that introduces students to the first steps in writing. A placement test determines book in which to start.
Basic Composition II (grades 10,11,12)	1	Provides techniques to build and improve writing skills. *Approaches to Writing* is the individualized text. A placement test determines book in which to start.
College Composition (grades 11,12)	1	*Programmed College Composition* concentrates on organization of ideas, content, and editing equivalent to freshman college English. A placement test determines book in which to start.
GED English	1	Review of grammar, spelling, vocabulary necessary to pass GED English test.
Spelling	0	Programmed course using variety of approaches for troublesome words.

English for the Typewriter (grades 11,12)	1	Course consists of 3 workbooks covering spelling, punctuation, and word usage. A typewriter is not required. Business usage is stressed.
Social Studies		
World History I (grades 9,10,11,12)	1	A one-semester, condensed course covering man from prehistoric days to modern time. The Study Lessons are not programmed, but material is presented in easy-read, short lessons.
World History I & II (grades 10,11,12)	2**	*Record of Mankind* is not programmed and requires an above-average student to succeed. A workbook accompanies the text and sells for $2.75.
United States Geography (grades 9,10,11,12)	1	Study of the U.S. divided into geographical areas of *East, Central,* and *West.* Course covers role of natural resources as dictated by climatic conditions.
American History Study Lessons (grades 10,11,12)	1	Study lessons which begin with colonial times and progresses to current problems of our democracy.
American Government (grades 10,11,12)	1	Programmed course consisting of two volumes which cover the fundamental structure of our system of government. Choice of final two volumes in specialized areas of *How A Bill Becomes a Law,* Constitution or Economics series.
Economics V (grades 11,12)	2*	A study of the economics development of our nation. Course covers questions of economic policy encountered in daily living.
World Affairs (grades 9,10,11,12)	1	Combination of tapes and programmed books, discussing four controversial issues: *Vietnam, Russia* vs. *China, The Negro Crisis* and *United Nations*
U.S. History I (grades 10,11,12)	1	Individualized course beginning with the discovery of America and programmed through the reconstruction period.
U.S. History II (grades 10,11,12)	1	Continuation of first semester history progressing to the most current 1972 history.
Sociology (grades 11,12)	1	An introductory course in the study of man's behavior and development in relation to society as a whole. Nine units with thought questions and tapes. Recommended for the above-average students.
Science and Health		
General Science (grades 9,10,11,12)	2*	Course covers 4 books which introduce biology, chemistry, sound, light, communication, measurement, meteorology, astronomy, and work and machines.
Biology (grades 9,10,11,12)	2*	Programmed course covering areas of biology equivalent to a standard, one-year course in high school without lab work.
Chemistry (grades 10,11,12)	2*	Programmed material equivalent to a 2-semester course in high school without lab work.
Personal Health (grades 9,10,11,12)	1	Chapters in Modern Health coincide with programmed books in *Body Structure, Personal Health, Communicable Diseases,* and *First Aid.*
General Psychology (grades 11,12)	1	Course text is *Introduction to Psychology*—the study of man's behavior. Text is divided into 24 study units and tapes; test at end of each unit and final over entire course. Various topics covered are Freud, emotions, motivation, stresses, racism, preception, drugs, approaches to child development, youth in the 70's etc.
Mathematics		
General Math (grades 9,10,11,12)	2*	A placement test determines the areas needed for study. The text is *Introduction to Mathematics* and covers fractions, decimals, per cent, interest, simple geometry, measurement and the metric system.
Modern Basic Math (grades 9,10,11,12)	2*	Covers same areas as General Math, but uses terminology found in the new modern math.
Algebra I (grades 9,10,11,12)	2*	Course introduces positive and negative numbers, equations, formulas, polynomials, factoring, quadratics and square root.

Algebra II (grades 9,10,11,12)	2*	Continuation of Algebra I, reviewing basic procedures and advancing to graph, ratios, proportions, variations and numerical trigonometry.
Modern Algebra (grades 9,10,11,12)	2*	Equivalent to first-year Algebra course. Uses new terminology found in modern mathematics.
Plane Geometry (grades 11,12)	2*	A course in basic concepts, postulates and axioms, problem solving, circles, measurements, logic and proportions.
Solid Geometry (grades 11,12)	1	Three dimensional space, geometric figures in space, terms and definitions, the plane, skew lines, loci, solid geometric figures, the sphere, and coordinate geometry.
Trigonometry (grades 11,12)	1	Functions of acute and right angles, solution of right and ablique triangles, and trigometric and logarithmic tables.
Analytic Trigonometry (grades 11,12)	1	Real numbers, functions and their graphs, trigonometric functions, sine and cosine functions, trigonometric identities, conditional trigonometric equasions, applications to geometry, and complex numbers.
Introduction to Calculus (grade 12)	1	Introductory course containing material commonly covered in one-semester course. Presumes student has had algebra and trigonomentry.
Business Math (grades 10,11,12)	2*	Course covers fundamental concepts, payroll, negotible instruments, depreciation, profits and loss, taxes, insurance, and other securities.
Consumer Mathematics (grades 10,11,12)	2*	Prepares students for future management of mathematics in personal affairs. Combines basic math skills with valuable consumer education.
Technical Math I (grades 10,11,12)	1	An introduction (or review) of basic algebra operations, positive and negative numbers, equations, graphing, etc. A good course for students wanting a strong math background for technical programs.
Technical Math II (gradcs 10,11,12)	1	A continuation of Tech. Math I which introduces vectors, trig. ratios, technical measurement, quadratic equations.
Technical Math III (grades 10,11,12)	1	A continuation of Tech. Math II which introduces radical, geometry, triangles and applied trig., complex numbers, and logarithms.
Review Algebra	1	An individualized but not programmed review course in basic Algebra published by Westinghouse. Introduces properties of numbers, polynomials, equations, inequalities, graphing, quadratics, number systems, functions, logarithms, and exponents.
Statistics	1	This is a programmed course and requires a pre-test and one year of Algebra. There are 4 tests and 4 vocabulary lists. Topics covered include distributions, central tendency, samples and populations, probability and statistical inference. One book for one credit.
GED Math (grades 11,12)	1	Review of basic math, algebra, geometry and modern math necessary to pass the math GED test.

Business-Clerical—Note: Many clerical courses are only available from 8:00 a.m.-4:30 p.m.

Business Math	2*	(See Mathematics)
Business English	1	(See English)
Business Correspondence	1	(See English)
English for the Typewriter	1	(See English)
Bookkeeping I (grades 10,11,12)	1**	Fundamentals of double entry record keeping. Covers the complete bookkeeping cycle for systematic recording of business transactions. *Basic Bookkeeping and Accounting* is the text and must be purchased by a student.
Typing I (grades 9,10,11,12)	1	Introductory Course
Bookkeeping II (grades 10,11,12)	1**	Continuation of Bookkeeping I. Includes practice set.
Typing II (grades 9,10,11,12)	1	Continuation from beginning typing. Improves basic skills, and provides intensive practice on basic typing operations.

Typing III (grades 10,11,12)	1	Develops production typewriting competence. Prepares studies for business.
Recordkeeping (grades 10,11,12)	2**	Prepares students for keeping financial records in office occupations and relating principles of recordkeeping directly to daily activities.
Salesmanship (grades 10,11,12)	1	Introducing the requirements of selling in today's competitive business world. Course describes customer-oriented salesmanship.
Shorthand I (grades 10,11,12)	1**	Teaches Gregg shorthand rapidly and accurately in the shortest time possible and provides student with transcription readiness by building his vocabulary and ability to spell and punctuate accurately.
Shorthand II	1**	Continuation of first semester with more emphasis on transcription.
Office Practice (grades 11,12)	1**	Prerequisite of one-semester typing. Enables students to become familiar with office procedures commonly used in the business office.
Office Machines (grades 11,12)	1**	Prerequisite of typing ability. Teaches skill with 10-key adder, printing calculator, spirit and mimeo process of duplication.
Investments	0	Making money work through savings and investment. Compares simple interest and compound interest paid. Suggestions for good ways to invest money.
Insurance	0	Introduces insurance and discusses fire, health, auto, and life insurance. Also discusses Social Security benefits.
General Interest		
Budgeting	0	A practical course for the student wanting to learn how to plan spending program for the household.
Foods (grades 11,12)	1	Field of food preparation. Presents discussion of nutrition, selection, preparation, and service of food. Course is for above-average student.
Consumer Education (grades 10,11,12)	1	Includes study of consumer credit, investing, insurance, consumer laws and budgeting. Course consists of short pamphlets with work sheets, tapes, and examples to supplement.
Career Exploration	1	Involves aptitude testing and counseling followed by an investigation into all aspects of choosing a career, training for it, and getting a job. Singer Graflex and other evaluation instruments used as needed.
Vocational		
Blueprint (grades 10,11,12)	1	A study of the interpretative phase of engineering drawing and excludes study of the manual skills used in preparing drawings.
Basic Electronics (grades 11,12)	2*	A three-book course consisting of fundamentals in electricity, electronics, and transistors. Course develops the basic electrical concepts leading to further study in electronics. Prerequisite is one year of Algebra.
Basic Automotives (grades 9,10,11,12)	1	Course offers a basic introduction to automotives covering the engine, drive train, fuel system and ignition system. It stresses recognizing parts and their functions.
Slide Rule (grades 11,12)	0	Basic course that shows how slide rule works. Introduces fundamentals of logarithms so student knows how they work.
Basic Nursing Techniques (grades 10,11,12)	1	Basic nursing techniques, basic patient care, drugs, nutrition, and medical terminology are areas covered.
Medical Terminology	0	Study of terms generally accepted as basic to any medical terminology course.

*2 credit courses may be taken for 1 credit also.
**Books extra

Hawkeye Institute of Technology
Independent Learning Center
224 Commercial, Box 8015
Waterloo, Iowa
Phone—234-5745

Mini-Courses offered at arranged times day or night.

Reading & Language
- Improve Your Study Methods
- Increase Your Vocabulary
- (general, business, special interest)
- Effective Listening
- Spelling
- Medical Terminology
- GED Crash Review

Personal Finance
- Job Seeking Skills
- Budgeting & Family Finance
- Recordkeeping for Personal Income Tax
- How to Buy a Car
- Household Finance Records
- Buying Insurance

Self-Improvement
- Personal Development for Girls
- Personal Development for Boys
- Understanding Yourself
- Family Living
- Job Seeking Skills
- Budgeting & Family Finance
- Personal Efficiency
- Health

Industrial & Commercial
- Basic Safety
- Metric System for Application
- Small Engine Repair
- Advertising
- Retail Salesmanship
- Basic Selling Techniques
- Purchasing
- Inventory Control
- Typing Review

Math
- Long Division
- Working Percentages & Interest
- Working Fractions
- Working Decimals
- Introduction to Algebra
- Modern Math for Parents
- Slide Rule
- How to Balance Your Check Book
- Understanding Your Pay Check
- Project in Math Study (arranged)

Special Interest
- Parliamentary Procedure
- Basic First Aid
- Know Your Car
- Drugs & Society
- Minority Experience
- Study Project (arranged for any student)
- Group Tour
- Discussion Group (arranged)

YOU ARRANGE THE CLASS SCHEDULE TO SUIT YOU. WE OFFER THE PROGRAMS DAY AND NIGHT. COST IS $5.00 PER COURSE.